THE VETERINARY JOURNAL

AND

Annals of Comparative Pathology.

JUNE, 1895.

Editorial.

THE readers of the Journal will peruse with some degree of interest, the Report of the Royal Commission on Tuberculosis, which I have been enabled to furnish them with in this month's issue. I am bound to admit that the experimental researches made by the members of the Commission have confirmed what has been known regarding Tuberculosis to the veterinary profession for years past, but I regret that it has taken almost five years to bring the enquiries and researches of the Commission to a conclusion. I fervently trust that our Government will not now "take pause" and pursue a policy of inaction, as happened after the investigations of 1888, apparently influenced by considerations that related more particularly to the difficulty in diagnosing, and to compensation for the destruction of pedigree cattle. I think that not only should the Commission have finished its enquiries, etc., within five years, but that, in addition, the all-powerful and sapient "Animals" Department of the Board of Agriculture should have had the disease well in hand, or its progress checked at all events, by the application of measures that would eventually have ensured its extirpation. That day *must* come; wherefore this delay? Tuberculosis in cattle is not a disease of yesterday merely.

In the year 1865, Villemin discovered that man could communicate Tuberculosis to the bovine species. Further experiments by Chauveau proved it not only to be inoculable, but producible by ingestion. In 1881, Toussaint further discovered that the organisms of Tuberculosis could be cultivated outside of the body of the animal. But the crowning

discovery was Koch's in 1882, viz., that of the "Bacillus Tuberculosis." Innumerable experiments since then have amply confirmed the soundness of the discoveries, and the correctness of the teachings of these eminent scientists. The labours of the Commission which have just been completed, have in no material point forwarded our knowledge, or gone the length of recommending any line of action, as did that of 1888, which latter recommended the adoption of measures for the prevention and extirpation of Tuberculosis, that were never carried out, even in the remotest degree. Had they been so carried out, it is highly probable that the formation of the last Commission would not have been found necessary.

I am of opinion that the work of the last Commission has ended in a manner not altogether satisfactory to the general public. The text given to it to preach from, an old one, "Cauld kail, het again," has been religiously stuck to. There has been a long and expensive course of study, to enable the Commission to deliver it, yet no way of escape from the evils expounded on, except boiling our lacteal supply, has been shown or offered to us. Oh! no. "We note that your Majesty's gracious commands do not extend to enquiry or report on administrative procedures available for reducing the amount of tuberculous material in the food, supplied by animals to man, and we have regarded such questions as being beyond our province." So runs the concluding paragraph of the Report. "And pity 'tis 'tis true." I recognise and appreciate the great scientific attainments of the gentlemen appointed to the work of the last Commission. They numbered among them Professor G. T. Brown, C.B., than whom there does not exist a man better qualified to grapple with a pestilential disease among the lower animals such as Tuberculosis has become to be; yet, in his Addendum to the Report, his recommendations are, to a great extent, more negative than positive in character.

To those who are aware of the great and rapidly-increasing prevalence of this deadly disease, the outcome of the lengthened sitting of the Commission is most disappointing. The disease is spreading to an alarming extent, demanding immediate remedial action by the Government, in the interests of the public at large. The disease is of so subtle and virulent a nature, that the milk from one tuberculous quarter of a cow's udder, contaminates with the death-dealing bacilli the milk from all the cows in a dairy when mixed with it. This is a solemn truth, a fact that cannot be refuted. How grave

is the responsibility of a Government that continues to palter with a disease pregnant with such far-reaching and deadly consequences.

Regarding its prevalence, the Royal Commission on Agriculture, only some few months ago, were furnished with information of a thoroughly reliable kind, that the famous Ayrshire and Wigtownshire breeds of cows were found to be seriously affected, to the extent in some herds of 75 per cent., also that many cows died from its ravages. It was reported that twenty to twenty-five years ago, the disease was comparatively unknown, evidence being produced to prove that the present calamitous state of matters has resulted from breeding with highly in-bred bulls. The celebrated *Polled Angus*, and other breeds, from the same cause has also become contaminated to an extent that is not generally realised. I would advise the Government to come at once to the rescue. We have now at our command a diagnostic test of incalculable value in "tuberculin." The judicious use of this test, and the compulsory inspection of dairy cows by qualified veterinarians, should be put into force without delay. The recommendations made by the Department Committee of the Privy Council in the year 1888, to schedule the disease, slaughter and give compensation, should be acted upon. This might not meet with the approval of some owners of herds, but the question has become of national importance and should in this spirit be dealt with. By no other means can we hope to exterminate a disease whose rapid spread is creating alarm among all owners and breeders of bovine stock, and which menaces the health of the whole population of the country.

Since writing the above I learn, to my great satisfaction, that the Belgian Government is about to take energetic measures for the suppression of tuberculosis. The *Echo Vétérinaire*, of Liége, says:—"The Government has framed a Bill dealing with tuberculosis from the point of view of public health, and it seems that the outcome of this measure will be that injections of tuberculin will be made compulsory in certain circumstances. Being desirous of making the new measure a success, the Government will undertake all the expenses incurred through its operation. The Minister of Agriculture (M. de Bruyn) has given proof of his practical common-sense in proposing the scrutiny of all farm-stock with a view to the discovery of tuberculous animals; this would enable surgeons to apply the remedy demanded by the circumstances, and would unquestionably result in the extir-

pation of the disease—a most glorious result." The writer goes on to say that the Government Bill ought to receive the hearty co-operation and support of all veterinary surgeons. He advises his colleagues in the profession not to be too exacting in their demands, but to see that they get a fair and equitable tariff of fees fixed by the Government. He is equally strong in advising his professional brethren to secure the work of tuberculination for themselves, as being those whose natural right it is, and not to allow the Government to impose this duty on inspectors or their assistants. "It is the right of veterinary surgeons to perform this tuberculination, and, in our opinion, it ought to be the right of the surgeon ordinarily visiting the establishment where the disease has broken out to perform the operation. Such an arrangement would be not only just, but it would do away with the drawbacks resulting from a choice of operators. Of course, in order to secure this right the visiting surgeon would require on his part to make some sacrifice, and, seeing that the Government would be his paymaster, he need not hesitate to do this."

At a meeting of the Veterinary Medical Society of Liége, the subject of fees exigible by surgeons performing tuberculination of animals was discussed and the following scale proposed:—For operating on animals within the parish in which the surgeon resides, 50 centimes (about 5d.) per head for the first ten subjects, and 25 centimes per head when the number exceeds ten. In addition, a fee of one franc 50 centimes (say 1s. 3d.) per visit, the number of these to be restricted to three, one on the day of operation and the two others on the following day, for the purpose of taking the temperatures. These fees to be increased proportionately to the distance travelled by the surgeon, and an allowance to be made for travelling expenses.

Here is an example for the British Government.

AN UNSEEMLY DISPLAY.

It is with great regret that I find myself compelled to take notice of an outburst of bad feeling which has taken place in an Edinburgh veterinary institution. I generally try to avoid mixing myself up with my neighbours' quarrels, especially when they are of a sordid kind, and I would gladly save my readers all reference to this ridiculous affair, knowing that such reference gives it an importance and a prominence which it does not deserve, but my silence might be misconstrued and might be supposed to mean that I took guilt to

myself or that I perhaps felt annoyed by the taunts and jeers of my opponents. As Editor of this Journal, as Principal of the New Veterinary College, and as a member of the Edinburgh Town Council, therefore, I crave the indulgence of the veterinary public whilst I detail the matter which has given rise to an extremely offensive article in the *Veterinarian*, the organ of the Dick Veterinary College.

On the death of Professor Walley, whose loss we all deplore, it was thought that a good opportunity was presented for amalgamating the two rival veterinary colleges in Edinburgh. There were many cogent reasons for this union and consolidation of the veterinary teaching power in Edinburgh. The Lord Provost of the city, who is *ex officio* a member of the Edinburgh University Court and a member and ex-Master of the Merchant Company—the most powerful and influential patrons of education in Scotland—saw that the training of veterinary students was gradually becoming a more and more important matter for the country and deserved more careful recognition than had hitherto been bestowed upon it. Being a far-seeing and patriotic Scotchman he thought it desirable that another feather should be added to the bonnet of the capital of Scotland, whose "chief industry" as one of his predecessors humorously put it, is education; and he made efforts to amalgamate the veterinary colleges. Undoubtedly he was right, unquestionably veterinary science would have benefited and veterinary teaching would have improved, had the Lord Provost's proposal been carried out. But there were jealousies to be overcome, there were old-standing rivalries to be got out of the way before the beneficent scheme of Lord Provost Macdonald and his colleagues, the trustees of the Dick College, could take effect, and unfortunately these rivalries and jealousies were victorious and the scheme was balked. Let my readers take note that it was not decided beforehand how the amalgamation should be effected, that is, which of the two elements was to predominate, what was to be the name of the new college, or who was to be the Principal. The scheme was conceived in the interests of the higher scientific education, and probably with a view to an eventual connection between the Veterinary College and the University of Edinburgh. It is possible I might have been honoured by my fellow-citizens by being asked to conduct the new establishment for a year or two, at any rate at its commencement, but that was by no means a certainty, and I should have been pleased to stand aside had an abler

or more suitable man been found to fill the difficult and troublesome position. This I will solemnly declare, that, as a member of the Edinburgh Town Council—who are the patrons of the Dick College—I took no part, could take no part, in the negotiations that were conducted by the Council for the purpose of amalgamating the colleges; no self-respecting body of citizens would permit an interested member to vote on his own case, and I never attempted to take part in the negotiations, never wished, but kept studiously and scrupulously aloof.

The scheme, as I have said, was frustrated, and no sooner was it known that the laudable efforts of the Lord Provost and others had failed, than a shriek of jubilation came forth from the Dick College. In the *Veterinarian* for May there appears an editorial article from which I quote a passage, leaving my readers to form their own opinion as to the good feeling and refined taste displayed by the writer:—"Amalgamation and union are words to conjure with, and the small but very active party that have been engaged in pushing this matter before the public notice have made the most of them. Motions in Council, platform addresses, newspaper articles, representations and misrepresentations have all failed to carry into effect the neat little scheme. The trustees, having investigated the matter, found that the question, as they gently expressed it, was 'surrounded with many difficulties.' We are not informed as to the kind of difficulties, but as the partisans of the New College have not been able to hide what *their* views of amalgamation amounted to, and as that evidently was the absorption of the old College by the new one, we can quite understand how great were the difficulties encountered. We read recently that a serpent in the Zoological Gardens succeeded in swallowing another of its own size—a remarkable effort accomplished with great difficulty—and we understand that it has since died of the surfeit. We can easily imagine how much greater would have been the difficulty and how much more rapidly fatal the result, if it had attempted to swallow one twice its own size, and we cannot but congratulate the New College that it has been saved from its friends who were anxious to see it 'go one better' than the serpent at the Zoo." The spitefulness underlying this ponderous witticism will become more apparent further on.

At the meeting of the Town Council of Edinburgh, on the 7th May, at which the Lord Provost was not present, the article in the *Veterinarian* was brought under the notice of

the Council by Councillor Cranston, as shown by the following extract from the *Scotsman* of 8th May :—

Mr. Cranston drew the attention of the Council to an article which had appeared in a veterinary magazine, which, he said, contained an attack upon the Town Council as trustees of the Dick College. That magazine was edited within the College, and no more uncalled-for, more ungentlemanly, and more blackguardly piece of literature was ever produced by any man. That language was strong, but it was not stronger than the article in the magazine, which stigmatised the Council as being engaged in hole-and-corner work, and he for one would not permit Dr. Aitken, or any other professor, to write in such a manner, without giving expression to his own opinion. The Dick Trustees should convey to these gentlemen that what the Council did was in the interests of the city, and if it was found that the action was not in the interests of the city, it was not because any hole-and-corner scheme existed.

Mr. Hay said he sympathised with what had been said by Mr. Cranston. Everything had been done for the good of the College, and he detested the insinuations that had been cast upon himself and his colleagues.

The Chairman said that in the Lord Provost they had a man who had considered the subject to the best of his ability, who was convinced of the need of reform of the institution, and who would not be driven aside. Sir James Russell had also given the subject earnest consideration, and they might trust these two gentlemen to see that the Dick Trust would be put on a new footing. If the professors proved intractable, perhaps others would be got to take their places.

Next follows a remarkable letter from Dr. Aitken, which is distinguished by the absence of that jubilant hilarity that characterized the magazine article.

Royal (Dick's) Veterinary College,
Edinburgh, *May* 8, 1895.

SIR,—I beg your permission for space to reply to a serious charge made by Councillor Cranston at yesterday's meeting of the Town Council. He is reported to have said that the editors of the journal emanating from this College did in its pages "stigmatise the Town Council as being engaged in hole-and-corner work."

Happily, the charge is quite unfounded, and the violent language in which it was expressed entirely unwarranted. It is unfortunate if the article complained of is so expressed as to cause anyone to put this wrong construction on it. The "active party" mentioned in the article has no reference whatever to the Town Councillors, who are trustees of the Dick College, but to a set of busybodies who have persistently endeavoured to force the trustees into adopting their amalgamation policy by publishing articles in newspapers and magazines containing misrepresentations and insinuations injurious to the interests of this College. The teaching staff drew the attention of the trustees to these matters, and asked that they might be heard by them so that they might inform them of the injury that was being done by this circulation. That request was met in the most frank and ample manner. Who the promoters of the amalgamation scheme were I know not, and I understand they are equally unknown to Principal Williams, who very properly took no part whatever in the scheme either one way or another. It is quite inconceivable that the trustees could have been taking any other part in the matter than that which tended towards the success of their institution and the public good. I much regret the misunderstanding that has occurred, and, so far as I am concerned, I shall take steps to prevent further misconception.—I am, &c.,

A. P. AITKEN.

Then Mr. Cranston valiantly returns to the attack :—

Dunard, Grange Loan, Edinburgh, *May 9th*, 1895.

SIR,—In your issue of to-day you have a reply from Professor A. P. Aitken to my complaint made at the last meeting of the Edinburgh Town Council.

Let me first call attention to the fact that I did not state, nor do you report that I said, "the editors of the journal stigmatised the town council," etc. I said—"In a journal of which Professor Aitken, of the Veterinary College, was one of the editors." I never attributed the article to the pen of Professor Aitken. My complaint was, and is, that he (as editor of the journal) should have permitted such an article to have a place within its pages. The journal referred to is the *Veterinarian*, and is edited by Professors Aitken, Dewar, and Mettam.

Now is the important point! He states--"Happily, the charge is quite unfounded." Is it a fact that he is editor? Is it a fact that the article appears in the journal? and is it a fact that the following words occur in the article :--"Motions in council, platform addresses, newspaper articles, representations and misrepresentations, have all failed to carry into effect the neat little scheme. . . . We read recently that a serpent at the Zoological Gardens succeeded in swallowing another of its own size--a remarkable effort, accomplished with great difficulty, and we understand that it has since died of the surfeit. . . . We cannot but congratulate the New College that it has been saved from its friends who were anxious to see it go one better than the serpent at the Zoo." Who could the motions in the Council be by but by the Councillors? Who are the trustees of the Dick College?--the Councillors. Professor Aitken's letter is simply a cave in--an admission that he has done wrong, and as such I am perfectly willing to accept it. I am perfectly certain that Professor Aitken, in his zeal, has overstepped the mark, and I think that Professor Aitken and his colleagues will admit that no man was more anxious than I was, and am still, to preserve all the interests of the Dick College ; but, as I stated at the Council, I am not prepared to allow any gentleman to make an uncalled-for attack upon either myself or my colleagues in the Town Council. I feel very keenly on the subject, as Professor Aitken knows well that everything was done in the interests of the Dick College, by myself and others, and if he will read the article in question, he will undoubtedly see that I had good ground for complaint.--I am, &c., ROBERT CRANSTON.

To this letter of Mr. Cranston's there was, of course, no reply, and I might therefore bring my article to a close at this point, leaving Dr. Aitken to smart under Mr. Cranston's severe castigation, but I feel bound to acknowledge the kindness of the Edinburgh press by re-printing a short leader that appeared in the *Evening Dispatch* of 11th May.

The affairs of the Dick Veterinary College have assumed a new aspect in consequence of the blunder of the professorial editors of the *Veterinarian*, and, unfortunately for themselves and the institution they represent, Professor Aitken, their spokesman, has made the matter worse by his explanation. In this explanation he denied Councillor Cranston's charge that the officials had accused members of the Town Council of engaging in hole-and-corner intrigues. It was only "busybodies" in newspapers who were meant, says Professor Aitken. Now this is what may be called protesting too much. The Professor in the original said "Motions in Council, platform addresses, newspaper articles, representations and misrepresentations, have all failed to carry into effect this neat little scheme." Does he then seriously mean to assert

that he and his co-editors did not here mean to refer to Councillors as well as others, or how could newspaper busybodies make "motions in Council?" As a matter of fact, the proposal for amalgamation—a most wise and opportune one, we think—originated in the Council, and was supported in newspapers, including the *Times*. Among others, we pointed out the great advantages that would accrue not only to the city but also to the country and the veterinary profession from having one strong, well-staffed, and equipped College in this city instead of two, which were likely to meet with greater opposition in the near future, and ought therefore to consolidate their resources. The Government have promised to subsidise a College in Dublin—another concession to Irish importunity—and it is well-known that a large proportion of the veterinary students are drawn from Ireland. The present number of Irish students is not likely, therefore, to be long maintained. The most urgent reason of all, however, is sufficiently well known to the Council, and we may now disclose it to the public. The Dick College is in a bad way financially; in the course of the past twelve years it has accumulated a debt which at present stands at £12,514 1s. 4d. Obviously, then, the existing state of things is not wholesome, and it behoves the Council even yet to consider carefully the present and future of the College. A similar favourable opportunity may not soon occur again.

The statement which the editor makes as to financial matters is sufficiently grave; it throws quite a strong light on the serpent story and makes one think of the story of the frog that wished to be as big as the ox; the little animal puffed itself out terribly, but—it was all wind and at last poor little froggy burst.

PERSISTENT PROLAPSUS OF THE RECTUM IN THE DOG—LAPAROTOMY—FIXATION OF THE BOWEL TO THE VENTRAL WALL—RECOVERY.

BY HENRY GRAY, M.R.C.V.S., KENSINGTON.

THE subject of this communication was a male pug puppy, aged three months when I purchased him in January last for my children.

During the first week of February it was seized with an attack of distemper, and as he evacuated a quantity of ascarides, which seemed to cause tenesmus, I ordered him an ordinary worm pill. A few days after this, about two inches of the rectum was found to be protruding from the anus. As a bandage failed to retain the bowel, I passed a metallic suture transversely through the anus, and ordered quietude and a milk diet. A week after I removed the suture, which was quickly followed by a return of the prolapsus. Suture inserted again, but this time the gut would at times be pushed by until another suture was also inserted. As I found them cutting through the anus, I removed them about ten days after the last insertion, but the gut was found next morning

hanging out of the anus. This time it was retained by passing the suture vertically through the anus. A few days before Good Friday I removed it again to be followed by a return of the complaint. By this time I began to get tired of doing anything more for the animal in the shape of an operation, so I ordered an astringent lotion composed of zinc. sulph. gr. v., tr. opii m.x., aquæ 1 oz., to be sponged three times a day on the mucous membrane of the protruded gut, and then it was to be pushed into the pelvic cavity. On Good Friday, seeing no improvement in the progress of the case, I, without any preparation, anæsthetised the animal with chloroform, and made an incision of 1½ ins. through the abdominal wall, about an inch to the left of the vaginam penis, and running parallel with it. I then passed my index finger and thumb into the abdominal cavity, and seized the rectum, which I withdrew through the abdominal opening. About six inches from the anus, I found that the organ* had doubled on itself—intussuscepted—for about ¾ in., and that cohesion of the peritoneal covering of the respective portions of it was firm, and required some little traction before it could be reduced. I afterwards passed two silk sutures through, from without inwards, the upper lip of the wound including the muscles and peritoneum, carrying them through the peritoneal coat of the bowel at its *free surface*, and where it was covered with organised exudate; the bowel remaining outside the abdominal cavity was now replaced into the abdomen, and the sutures were further carried through, within outwards, the peritoneum and muscles of the lower lip of the wound and then tied, allowing the free ends to hang outside the cutaneous incision, which was likewise sutured by two independent stitches. After sponging the external wound with a weak creolin solution, the animal was placed on a straw bed to recover from the effects of the chloroform. No solid food was allowed to be given. Skim milk was given for three times, and then a return to ordinary food was permitted. The four stitches were divided and removed on the following Thursday. For a fortnight after the operation the fæces were passed in worm-like or stringy casts and with some effort suggesting that the gut, at the part where the intussusception had taken place, was constricted. At the time of writing the animal is as well as ever it was in health, and since the operation has never been off its appetite. Beyond sponging the operation wound with creolin water immediately after the operation and removing the stitches on the following

* About 6 ins. of the rectum, just before the operation, was hanging outside the anus.

Thursday, no antiseptic precautions were observed, and no after treatment was carried out.

DILATATION OF THE ŒSOPHAGUS.

BY "HIRUDO."

THE following case, although, perhaps, it has not much to warrant its publication from the pathological or therapeutical side, yet it may not be without interest from an ethical or economic point of view.

An old woman who kept a dairy of six cows, purchased in the market a seven-year-old Irish cow. It did well for a week, feeding and milking to the satisfaction of the owner. I was then called to attend the animal. I found her slightly tympanitic, though not sufficiently so to cause great distress; there was inappetence, the secretion of milk had almost ceased, the cow was very dull, and grunted occasionally. On the left side of the neck, about its middle, was a large tumour the size of a child's head. It felt soft and doughy, and its manipulation was resented by the animal.

I learnt that on the previous day, after a hearty meal of crushed barley and chopped hay, the cow showed dulness, and that the swelling was noticed the next morning. I diagnosed the case to be one of dilatation of the œsophagus and proceeded to get rid of the contents of the sac. An ounce of liquor potassæ mixed with twelve ounces of oil was administered, some being returned with a good deal of coughing and spluttering along with some of the food from the pouch. I now kneaded the swelling vigorously, and after a quarter-of-an-hour's work the whole of the contents had disappeared. Thinking that, perhaps, I might be able to break down or at any rate enlarge the stricture which I felt sure existed, I attempted to pass a probang that was furnished with a small rounded end, but by no amount of patience and repeated efforts could the instrument be got past the dilated portion; although the cow was cast and many manœuvres tried, the attempt was at last given up as hopeless. Some advice had now to be given to the owner as to the future conduct of her new purchase, and as the woman was a poor widow who could ill afford to lose the price she had given for the cow, and as the dealer from whom it was bought had departed, I was fain to leave the moralities a little on the left hand and recommend sloppy bran for a few days and then the market.

A fortnight after, called to see a cow at the stables of an

hotel, owned by a limited liability company, and found the case to be one of dilatation of the œsophagus, and the subject of it my former patient. Liquor potassæ and oil and manipulation cleared the way; a few visits, plus the necessary powders, were given, and a regimen of soft food ordered.

Called to her twice at intervals of a fortnight afterwards. On the last occasion a message was given by the cowman that the manager would like to speak to me. The manager, having had the nature of the condition explained to him and the prognosis given, declared his intention of getting rid of the animal, to which I, of course, had to acquiesce, however much I might object on economic, to say nothing of moral grounds.

A short time afterwards, I was in a livery stable-keeper's yard attending a horse, and, as I was leaving, the proprietor said: "Do you attend cattle? (In some places, I may say, the veterinary surgeon is believed to doctor horses only.) I, of course, assured him that I was an adept in the treatment of their ailments. "Well, then, I wish you would look at a cow I have; old Bloodstick, the cow doctor, has been farrying her, and he is coming to-day to open a lump in her neck."

On entering the byre, I beheld my old friend, with about a couple of stone of bran in a sack tied round her neck by way of a poultice, to ripen the abscess one would suppose. The poultice being removed, the potash and oil and kneading soon caused the disappearance of the tumour.

This owner was a shrewd person. "Look here, master," said he; "you were so quick in knowing what was wrong with the cow and how to cure her, that I think you must have seen her before." Evasion was useless; I had to admit the soft impeachment, and, as a consequence, the hotel people had to refund a good sum.

I regret to have to relate that this time the cow was sold away from the district, and I had neither the advantage of again treating her nor of making a *post-mortem* examination.

THE EARLY DAYS OF ANÆSTHETICS IN VETERINARY SURGERY—A RETROSPECT.

BY E. WALLIS HOARE, F.R.C.V.S., CORK.

IF we desire to possess an accurate idea of the progress made in any department of veterinary science, it will be necessary to refer back to the available records on the birth and development of the subject in question.

We have in the pages of the *Veterinarian* ample records of all the developments of veterinary science, which will ever render the volumes of this periodical of priceless value, to those who take an interest in all that pertains to their profession. A retrospect of the subject of anæsthetics we venture to hope may prove both interesting and useful, not indeed that we can boast of a vastly increased knowledge of the subject, or of its practical application in present-day veterinary surgery. Even in these early years we find editorials persistently urging the employment of anæsthetics by practitioners of veterinary surgery; at the present time similar appeals are frequently being made, but, strange to say, they are found written in graphic language in medical journals rather than in current veterinary literature.

Formerly when animals were placed under the influence of an anæsthetic, for surgical purposes as well as experimentally, it was usual for medical men to be present in order to gain some practical information as to the safe application of the agent to the human species. *Now*, as the result of information derived from the action of chloroform and ether on animals, and from practical experience of the effects of these agents on human beings, the employment of anæsthetics is general in medical science, while in veterinary science in many instances their adoption is regarded as something of a curiosity even by medical men.

It would prove useless to recapitulate the many reasons for this state of affairs, they have so frequently been alluded to; suffice it to say that although the number of practitioners who employ anæsthetics is gradually on the increase, still a large amount of prejudice will have to be overcome before we can claim a similar basis in this respect to human surgery. Inactivity and carelessness on the one hand, with a disregard for the sufferings which animals are forced to undergo during operations on the other hand, may be accepted among the causes which still keep this indispensable attribute to scientific surgery in the background. The earliest notice of those laudable attempts at the introduction of anæsthetics into veterinary surgery, we find in the *Veterinarian* of February, 1847. As might be expected, among the earliest workers in this subject was that pioneer in the cause of the humane treatment of animals, Edward Mayhew. It would be impossible for anyone to read either his communication or his works, without being struck by the genuine qualities of this earnest worker, and his untiring efforts for the advancement of his profession. His first article on the present subject was

entitled "On the Effects of Inhalation of the Fumes of Æther on Dogs and Cats, and, by the inference on the Horse, with the probable utility of such in Veterinary Medicine." In this communication he describes a number of experiments performed on dogs and cats of various ages, with regard to the inhalation of æther. The apparatus used was a Florence flask which contained the æther; to the neck of this a large bladder was secured; the animal's head was introduced into the latter, and a spirit-lamp applied to the flask.

As we should expect, all the experiments showed great preliminary excitement, marked interference with respiration, and the occurrence of loud cries with gasping. These were mistaken by the experimenter for symptoms of pain and distress, and as a result he made the following statements:—

"The results of these trials are not calculated to inspire any very sanguine hopes. We cannot tell whether the cries emitted are evidence of pain or not, but they are suggestive of agony to the listener, and without testimony to the contrary, must be regarded as indicative of suffering." . . . .

"It is not likely to be of much practical utility. The comatose state is of short duration, and the ordinary operations occupy more time than can by it with safety be secured. There has yet no experiment that I know of been made to ascertain the action of the vapour on the horse, but I cannot anticipate that it will be found of much service in that animal."

In the same number the Editor of the *Veterinarian*, in his editorial remarks, draws special attention to Mayhew's experiments, and hopes that the American discovery shall be made to prove useful and available in veterinary practice. He, however, corrects Mayhew with reference to the cries emitted by the animals subjected to the influence of æther being regarded as evidence of pain, and brings forward the case of human beings in whom, under the influence of the drug, certain signs have been mistaken for evidence of consciousness, but when the operation was completed, it was proved by enquiry that they had not felt any pain.

The next article on the subject appears in March, 1847, also from the pen of Mayhew. In this he states that, having again tried the effect of æther on animals, and observed what appeared to his mind as symptoms of distress, he is determined to solve the mystery by testing the action of the drug on himself.

This was characteristic of the genuine humanity of the man, and showed how clearly he appreciated his duty towards the

lower animals, although, probably, he was regarded as something of a fanatic in those days on this subject; but in our present, so called civilised age, it is likely that similar views would be held concerning such convictions.

But Mayhew was not to be deterred by adverse criticism, and proved himself a diligent seeker after truth, and hence, in all his writings, although he boldly expresses his convictions, we find the element of fact to be largely present in them.

He describes his visit to a dentist, in order to have a sound wisdom tooth extracted while under the influence of æther, and graphically relates the amount of persuasion that was necessary before the dentist would undertake the operation. The process of inhalation is minutely described, and also the return to consciousness, when he learned that in consequence of his violent struggles it was impossible to extract the tooth, but that he remembered nothing of this. Next morning he subjects himself to a similar experiment, but with the same results, and learned that while under the influence of the drug he had been even more violent than on the previous day.

He concludes that the effects resemble those of intoxication by alcohol, but that the action of æther is more speedy, and that the cerebrum does not lose its activity, as evidenced by dreaming which occurs.

He concludes also that motion is not necessarily lost, as many have had it excited, and that it is the first regained, though some time elapses before it is perfectly restored to the control of volition.

He suggests that some combination is desirable in order to overcome those actions of the drug which are not desirable, and finally, in that language so characteristic of him, says: "A problem is given which it is the duty of science to work out, not a wonder created for professors to amuse the curious with. . . . . Before this discovery all others appear to me but small. I wonder and admire, but I would not, therefore, think all had been accomplished and nothing remained to do. Mighty deeds should be the excitants to activity, and what America has produced, England should strive to perfect."

In an Editorial in the same number of the *Veterinarian* Mr. Percivall gives an excellent *resumé* of observations and experiments with æther in animals, and states: "So far as experiments have yet gone, there is good reason to look forward to ætherization being both available and useful to veterinary surgeons in their practice."

Some experiments are then recorded by Mr. Barrow, of Newmarket, made on dogs, a thoroughbred two-year-old filly, and on donkeys.

Different operations were performed in a very satisfactory manner under the influence of æther, the anæsthetic being administered to the animals while standing and anæsthesia rapidly induced.

From *Bell's Life in London* a notice is extracted with reference to the operation of neurotomy having been performed under the influence of æther by Mr. Spooner, Royal Veterinary College, and also the amputation of a sheep's leg at the same institution by Mr. Simonds, for incurable disease of the hock-joint.

In both these cases the results were deemed eminently satisfactory.

In April, 1847, we have a case reported by Mr. Dobson, V.S., of amputation of a cow's leg, under the influence of æther.

An apparatus was employed similar to that used by surgeons, but with a tube extending to each nostril.

The operation was performed in the presence of several medical men, the animal taking seventeen minutes to become insensible to pain, and using four ounces of æther. No symptoms of pain were evinced until the integuments were being drawn together.

In the same month Messrs. Henderson and Cherry contribute an article on the effects of æther, in which they show by experiments that the administration of this drug to horses is not so easy or so safe as described by the professors at the veterinary college.

The administration was performed with the animals in the standing position, and in the last experiment noted the apparatus used was made so as to exclude atmospheric air.

Ten ounces of the drug were placed in the receptacle, the breathing became very laboured, and in six minutes the animal was dead; the autopsy revealing rupture of the aorta and rupture of the diaphragm.

But in all these experiments, as pointed out by the performers, there was no means of regulating the vapour and the rapidity of inhalation; and they very justly conclude that these are important points requiring attention. They overlooked, however, the presence of asphyxia in the fatal experiment, and its influence in producing violent respiratory movements, to which they attribute the lesions that occurred.

These points, even in the present day, require attention, as there are some practitioners who imagine that in order to produce anæsthesia in the horse it is necessary to induce a condition of semi-asphyxia, by depriving him of a proper supply of air.

Such an idea is irrational, both in theory and in practice, and will account for the deaths which occur during anæsthesia in this animal, although judging from published statistics they must be rarely met with.

(*To be continued.*)

THE *SCOTSMAN* ON THE BOARD OF AGRICULTURE AND THE VETERINARY PROFESSION.

THE "profession" will be glad to know that the *Scotsman*, the most influential newspaper in Scotland, has taken up the cudgels in defence of our rights. The following article appeared in the *Scotsman* of 22nd ult. :—

"On Monday night Mr. Herbert Gardner gave, in the House of Commons, what he intended to be accepted as his final decision with regard to certain changes that have been made in an important division of his Department. As these changes have given rise to much adverse criticism, and as Mr. Gardner in his reply refused to enter into the merits of the question, but merely declared that he was satisfied that they were necessary in the interests of the public service, and that he neither could nor would make any other arrangements, it is desirable that attention should be called to the matter, as it has an important bearing on agricultural interests. The changes referred to were made on the retirement of Professor Brown from the direction of the Veterinary Department of the Board of Agriculture. That Department was then under Professor Brown as Director. He was assisted by two Veterinary Inspectors, Mr. A. C. Cope and Mr. W. Duguid, and a chief travelling Inspector, Major Tennant. On the retirement of Professor Brown in 1893, the Department was completely re-organised. Its duties remained the same, but the title was changed from that of the Veterinary Department to that of the "Animals" Department. And with this change in title there was a corresponding change in its constitution. No new Director was appointed to take the place of Professor Brown, and the relative position of the executive and scientific officers was entirely reversed. Nominally the Department was split into two halves, one presided over by Mr. Cope and the other by Major Tennant; but their equality is unreal, for not only is there sufficient difference of salary to give the executive officer precedence over the scientific, but his superiority is further recognised by the fact that he is described as the "Principal" of the Animals Division. Mr. Cope is relegated to a part of the Department, while Major Tennant is provided with an office extending over the whole. The change is justified by the Board on the ground that recent legislation has largely increased the executive work of the Board, in regard to which it has always been the policy of the Board to look for assistance to local veterinary practitioners as much as possible, and to avoid any unnecessary concentration of professional work in official hands. It is also urged in their defence that, owing to the great advances made in veterinary science and in methods of pathological observation, it is desirable that the professional officers of the Board should be placed in the best position to take full advantage of these advances, and be enabled themselves to carry on those original investigations

which have been the basis of the operations undertaken against disease in the past, but which have in recent years been interrupted by the pressure of duties of a non-professional character.

"The object which the Board had before them in making the rearrangement was, according to their own statement, to afford to the scientific members of the division ampler opportunities for research. This they have done by placing them in a subordinate position, and depriving them of all control over the executive work of the Department. They have at the same time reduced their number from three to two. Even if it be granted that these changes would have the effect of giving the scientific members more time for original investigation, that fact would not be in itself a sufficient justification of them. They must be regarded from the point of view of their effect upon the whole operations of the Department. They have produced a radical change in its constitution. Formerly it was a Veterinary Department in fact as well as in name. It is that no longer, and the change has been recognised by a change of name. Yet, as has been already said, its duties remain unaltered. The Department was specially created for and solely concerned with the suppression of disease among live stock, and in almost every detail of its operations, whether in dealing with outbreaks of disease, the methods of spread, or the means of suppression, veterinary knowledge is constantly required. That a Department, whose work is of this nature, should be under the control of a veterinary expert, and that every effort should be made to make the scientific element predominant on its administrative staff, would appear to be only natural. Yet Mr. Gardner has discarded such a system in favour of the services of a number of half-pay navy and army officers, who may have the necessary qualifications for able administrative officials, but who are entirely destitute of the technical knowledge required, and have either to avail themselves of the assistance of local practitioners, or, as is often the case, display in the performance of their work an ignorance which serves only to amuse those whom they are sent to advise, and to bring the Department into contempt.

"It is upwards of two years since these changes were introduced, and their effect is already visible in the failure of the Board to deal with the recent outbreak of swine fever. Success accompanied the work of suppressing pleuro-pneumonia in 1893, when undertaken under a scientific director, but failure has attended the work under a mere executive principal. A committee of the Royal College of Veterinary Surgeons appointed to report on the question point out that during the stamping-out of pleuro-pneumonia the travelling inspector was entrusted with the inquiry into the origin and possible spread of each outbreak. In the attempted suppression of swine fever, he is left entirely to his own devices, not only in tracing out the origin and spread of disease, but in determining whether infected herds should be slaughtered or isolated, or partly slaughtered and partly isolated. 'This extension of the duties of laymen to such technical work as the investigation of pathological problems,' says the report, 'or to the very difficult duty of deciding what morbid conditions should justify slaughter, or where isolation should be adopted, or to the important question of selecting what carcases should be buried and what sold as human food, appears to your committee to be altogether indefensible. The extension of the duties of the lay inspectors to work for which they had not been specially trained is, they maintain, one cause of the extremely slow progress made in arresting the spread of swine fever, and is a departure from the older and sounder practice under which more than one contagious disease was stamped out. 'It is,' they say, 'a change detrimental to the stockowner and to the taxpayer, and one which has not added to the efficiency of the Board of Agriculture.' By the veterinary profession the change is much resented. They have always felt proud of the work done by

veterinarians for the State from the stamping out of the cattle plague in 1866 to the practical suppression of pleuro-pneumonia in 1893. They also appreciated the honour of having one of their members as the recognised head of the Department which is entrusted with the control of disease amongst live stock, and they are unwilling to be relegated to an entirely subordinate position. If the public and those concerned with agriculture had any assurance that under the new arrangement the work of the Department would be carried on as efficiently as before, they might be inclined to disregard the feelings of the veterinary profession. But they have not this assurance. It is impossible to believe that the work of dealing with disease—a work which, in the present depressed condition of agriculture—can be as effectually carried on under the new arrangements to which Mr. Gardner adheres with such obstinate determination, as when they were directed by a veterinarian of experience. The Department can ill afford to be weakened on the scientific side, yet such has been the effect of the changes introduced in 1893."

ROYAL COMMISSION ON TUBERCULOSIS.

Influence upon Animals of Food of Tuberculous Origin: Influence upon Man.

14. The primary object of the Commission, to learn the "effect of Food derived from Tuberculous Animals upon Human Health," was obviously one that could not be attained by direct experiment upon human beings. Yet it was upon this question that there had been least accord among the witnesses, though they did agree in their assurances that there was no valid evidence on the point to be had. The Commission undertook, therefore, these inquiries as to the effect of tuberculous food upon the health of lower animals, in the expectation of obtaining information applicable to the case of the human subject.

15. Dr. Martin selected for his experimental research a variety of animals which differed in their customary food material: pigs, guinea-pigs, and rabbits. The animals were fed with their usual foods, with the addition of some material (sometimes meat—much in the sense that a butcher might speak of meat,—sometimes milk, but always uncooked) derived from a tuberculous animal. No particular examination for actual tubercle in the food material was made in the experiments now being recorded, but some care was taken to avoid any obvious mass of tubercle.

16. Of each kind of animal thus fed, a certain percentage was found to become tuberculous; of pigs, 36 per cent. (5 out of 14); of guinea-pigs, 16 per cent. (24 out of 145); of rabbits, 15 per cent. (2 out of 13).

17. The experiment comprised also a number of animals kept under the same conditions as the rest (the pigs being members of the same litter), and only differing from the other animals of the experiment by receiving no material from a tuberculous animal in their food. Of these "control" animals (numbering 5 pigs, 203 guinea-pigs, and 8 rabbits), none became tuberculous.

18. We cannot but regard these differential experiments as showing a danger to a healthy animal from the introduction into its food of material taken from a tuberculous animal.

19. Further, Dr. Martin made experiments, not only with feeding-material "derived from tuberculous animals," but with material containing tuberculous matter recognised as such, and purposely added to the food of the experimental animal. This was done in the case of 1 pig, 8 guinea-pigs, and 10 calves; and of these, the pig, 6 guinea-pigs, and 8 calves became tuberculous. In these experiments the tuberculous matter had been taken sometimes from

a bovine, sometimes from a human source, and it is noteworthy that each animal received only a single dose of it.

20. Other experiments with manifestly tuberculous matter are recorded by Dr. Woodhead among a number of investigations made in the course of his own inquiry undertaken for us. He found this matter, given (uncooked) to various animals, gave rise to tuberculoos disease in all the pigs (7) and all the cats (5) that received it, aad in 50 guinea-pigs out of 76.

21. These more particular experiments by Drs. Martin and Woodhead, made with matter that had been identified as tuberculous, add much force to the inference derived from Dr. Martin's more general experience. They indicate, in the material used in feeding, the element that is dangerous to the healthy animals which have been fed.

22. We cannot refuse to apply, and we do not hesitate to apply, to the case of the human subject the evidence thus obtained from a variety of animals that differ widely in their habits of feeding—herbivora, carnivora, omnivora. As regards man, we must believe—and here we find ourselves agreeing with the majority of those who gave evidence before us—that any person who takes tuberculous matter into the body as food, incurs some risk of acquiring tuberculous disease. By "tuberculous matter," we mean here, of course, that which is capable of giving rise to tuberculosis in lower animals. This matter may be found in parts of animals affected by the disease. It is known to the naked eye by some well marked though various characters, and microscopically by the all but certain discovery of characteristic bacilli—the bacilli of tubercle.

23. It is this same matter, however,—known by naked eye characters that are very closely the same in man and in animals, and by microscopical characters that are all but identical,—that gives rise to tuberculosis in the human subject. And we find the present to be a convenient occasion for stating explicitly that we regard the disease as being the same disease in man and in the food-animals, no matter though there are differences in the one and the other in their manifestations of the disease; and that we consider the bacilli of tubercle to form an integral part of the disease in each, and (whatever be its origin) to be transmissible from man to animals, and from animals to animals. Of such transmissions there exists a quantity of evidence, altogether conclusive, derived from experiment. It is with the transmission of the disease to man by the ingestion of animal food that the present Commission is concerned.

24. The effects upon human health here spoken of as "tuberculous disease" are known to be different in some respects from the manifestations of tubercle in lower animals; and these differ again in one and another lower animal. There are also abundant differences in the manifestations of tubercle in the human body; differences no less than those exhibited by tubercular phthisis, tabes mesenterica, tubercular meningitis, and scrofula. We recognise in these different manifestations a varying amount of tuberculous matter or activity of tubercle-bacilli; the influence of the lymphatic system: the invasion of different organs, and so forth, together with a variety in the avenue by which tuberculous matter has been received into the human body, whether by the alimentary or by the respiratory system, or by other ways.

25. Again, as we find no distinction in nature between the various manifestations of tubercle in the human subject, so also we find no distinction in nature between the tuberculous diseases of man that have had their origin in tuberculous food and the tuberculous diseases of man that have been otherwise acquired. We know, indeed, of some of the tuberculous diseases above mentioned, especially those of the intestinal tract, being almost peculiar to children; and probably the proportion of tuberculous persons contracting their disease through food is larger among children than among their seniors.

We were not surprised to find that there is, at present, little information of this sort to be had; it is hardly to be expected until search has been made for a relation between tuberculous disease in man and tuberculous food taken by man. But in the future we look to health officers and hospital physicians for observations of importance on these points; though we are fully sensible of the difficulties that must attend any attempt to learn the origin of complaints of which the course is so slow as that of most tuberculous diseases.

Prevalence of Tuberculosis in Food-Animals: Recognition of it.

26. The risk to the community of acquiring tuberculous disease by the ingestion of food derived from tuberculous animals must needs depend in great measure on the extent to which such food is consumed by the community; and one food-animal is found to differ very much from another animal in the degree to which it habitually furnishes tuberculous food. Thus, from the excellent records of the Copenhagen slaughter-houses, the following totals for the four years, 1890–3 inclusive, have been derived:—

Of 132,294 oxen and cows, 23,305 showed evidences of tubercle.
Of 8,292 swine, 1,272 showed evidences of tubercle.
Of 185,765 calves, 369 showed evidences of tubercle.
Of 337,014 sheep, one only showed evidences of tubercle.

And the animals range themselves, at the time they are presented to the butcher, in the above order according to the frequency of tuberculosis in each, the percentage of tuberculous animals being here 17·7 for oxen and cows, 15·3 for swine, 0·2 for calves, and 0·0003 only among sheep.

27. From the Berlin slaughter-houses, the following is the report for the year 1892–3:—

Of 142,874 oxen and cows, 21,603 showed evidences of tuberculosis, and 1,609 were condemned on this account.
Of 518,073 swine, 7,055 showed evidences of tuberculosis, and 1,191 were condemned on this account.
Of 108,348 calves, 125 showed evidences of tuberculosis, and 62 were condemned on this account.
Of 355,949 sheep, 15 showed evidences of tuberculosis, and 12 were condemned on this account.

28. The percentages of tuberculous animals, therefore, were at Berlin slaughter-houses, 15·1 for oxen and cows, 1·55 for swine, 0·11 for calves, and 0·004 only for sheep; and the percentages of the several kinds of animals condemned on account of tuberculosis were, for cows and oxen, 1·26; for swine, 0·23; for calves, 0·06; and for sheep, 0·003.

29. There do not exist for the United Kingdom any records with which these can be compared. At Copenhagen and Berlin all the meat furnished to the towns is submitted to the inspection of experts. But we have reason to think that the facts about tuberculous animals would exhibit a broad resemblance to the foregoing, if such records could be obtained; not more different in degree, that is, than the difference seen between the Copenhagen and Berlin records, or that would be explained by variations in the practice of dealing with food-animals in one and another country. Such few data as are to be had for the United Kingdom confirm this view. Three hundred milch cows had to be slaughtered in Edinburgh in 1890 on account of the appearance of epidemic pleuro-pneumonia there, and their carcases were examined as to the presence or absence of tuberculous matter in them. Of the three hundred, 120, or 40 per cent., were found to be tuberculous, the percentage varying between 12 and 83, according as they came from one or another cowhouse. In Edinburgh, again, out of 27,769 cattle brought for slaughter to the public abattoir in 1890, 179, or 0·65 per cent., were condemned as being tuberculous, this percentage having risen from 0·16 in 1887,

when the system of examining for tubercle was begun there. Five pigs were condemned in 1890 out of 4,973, and no calves out of 5,160; no record is given about sheep.*

30. It follows from these considerations that tuberculosis in cattle has had particular interest for our inquiry. "Cattle" (full-grown) are seen to contrast very remarkably, with "Calves" in all these records. And it needs but a glance at the experience of Edinburgh to show that cows probably contribute far more than oxen to the record of tuberculosis in cattle. Indeed the researches made for us as to food of tuberculous origin and its infectivity to lower animals, and as to the influence of cooking processes in destroying the infectivity of tubercle, have all been made with food derived from tuberculous cows; for the good reason that, while the experience of this food could without much difficulty be applied to food from other animals, food derived from cows comprises, not only a portion of the meat, but practically the whole of the milk (if we except mother's milk) of the human community.

31. The above-recorded experiences of tubercle in various food-animals have been derived from the slaughter-house. But it were greatly to be desired that facts as to the presence of tuberculous disease should be procurable for animals during their life-time; they are wanted for the purpose, perhaps, of preventing the perpetuation of diseased stock, but certainly for a purpose of even more immediate concern for our Commission: in order that tuberculous cows should not furnish tuberculous milk to human consumers.

32. Professor McFadyean has reported to us about the means of recognising tuberculous disease in animals during life. He has searched the literature of the subject and has adduced a number of experimental observations of his own. Besides ordinary clinical methods of examination, he records attempts to discover, by various procedures, evidence of tubercle in the bodies of living animals which presently, *post-mortem*, were found affected with tubercle; and he arrives at the disquieting result that extensive tuberculous disease may exist in animals that appear, to his tests, to be in perfectly good health.

33. He reports on the injection of the substance (itself a derivate from tubercle bacilli) named "tuberculin." This substance was discovered by Dr. Koch, of Berlin, and was first advocated for the cure of tubercular patients. It was afterwards proposed to use the substance for the detection of tuberculosis in cattle, and some promising results from its use as a diagnostic are on record. These, however, were not confirmed by experimental trials made for the English Government and recorded in the report of the Veterinary Department for 189-.

34. Professor McFadyean finds, in his own hands, that this test substance has frequently led to erroneous inferences. He records, as the total outcome of his experiments, that he received wrong indications from tuberculin, about the presence or absence of tubercle in cattle, in the case of 24 animals out of 75; nevertheless he sums up his report by the statement:—"I have no hesitation in saying that, taking full account of its imperfections, tuberculin is the most valuable means of diagnosis in tuberculosis that we possess." And we understand that, since the time of Professor McFadyean's experiments, the method of using tuberculin as a test has been much improved, and that it is now regarded as affording more trustworthy indications for diagnosis.

35. Any want of means for recognising tuberculous disease in cows during life would appear, at first sight, to compromise the discovery of what is dangerous to human consumers in the milk of tuberculous cows, but it will presently be seen, in respect of this milk, that other considerations can be

* The total number of the animals *observed to be tuberculous* is not recorded. The above figures from the Edinburgh abattoir relate to animals *condemned* on that account.

taken into account, so that the diagnosis of tuberculosis in cows is not to be confounded with detection of tubercle in milk.

Circumstances determining danger to men from meat and milk of tuberculous organs:—(a.) Danger from Meat.

36. We regard it then as established that any person who takes tuberculous matter into the body as food incurs risk of acquiring tuberculous disease, and we know that this matter may be found in parts of animals affected by the disease. It is therefore of the first importance to us to note what parts of a tuberculous animal are liable to contain this tuberculous matter, having well-marked characters of its own, and among them the bacilli, which form an integral part of the disease. From this view point, we would report separately upon *Meat* and *Milk*, derived from these animals, and begin our consideration with *Meat*.

37. We find it necessary, in our study of the "Circumstances and Conditions with regard to Tuberculosis in the Animal," which endanger human health, to include in our definition of *Meat* the various parts of the tuberculous food-animal, and to assume a certain acquaintance with the actual presence of tubercle in the several parts. When, on the other hand, we wish to speak of the customary "joint" of the butcher, and to exclude organs and other tissues, we refer to it as *meat substance*. We do not propose to consider, except incidentally, carcases from which the organs have been removed in such wise that the condition of them could not be known to us.

38. We have now to point out the very great difference in one and another part of a tuberculous animal in the amount of tuberculous matter contained in the meat. This matter is found principally in the organs of the animals; as a rule, most abundantly in the lungs, lymphatic glands, serous membranes, but often in the liver, spleen, kidneys, intestines, and other structures. These organs are usually removed by the butcher in "dressing" the carcase, though some of them may, intentionally or not, be left. To a practised eye, it is hardly possible that tuberculous matter in these organs can escape detection, and the importance of its presence there will soon be apparent.

39. For, in the tissues which go to form the butcher's "joint" the material of tubercle is not often found, even where the organs exhibit very advanced or generalised tuberculosis; indeed, in muscle and muscle juice, it is very seldom that tubercle bacilli are to be met with; perhaps they are somewhat more often to be discovered in bone, or in some small lymphatic gland embedded in intermuscular fat. Yet there is always a difficulty in making sure of the absence of tuberculous matter from any part of a carcase that shows evidence of tubercle elsewhere.

40. In Dr. Martin's experiments for the detection of tuberculous matter three kinds of tests were employed; first, minute examination of the part for tubercle, with the aid of the microscope to discover tubercle bacilli; secondly, feeding susceptible animals—test animals—with suspected matter; and, thirdly, introducing into the bodies of test animals some of the suspected matter by way of inoculation—a more delicate test than the process of feeding.

41. Applying these tests to the meat substance of 21 cows known to be tuberculous in one or another degree, he could not get visible evidence of tubercle except in two instances, and there it was of very small amount. He records the results of his other tests as follows:—"Of eight cows (mild tuberculosis), the meat of one gave positive results in one animal from inoculation; none by feeding. Of eight cows (moderate tuberculosis), the meat of three gave positive results in four animals from inoculation; none by feeding. Of five cows (generalised tuberculosis), four gave positive results either by inoculation or by feeding," one only out of the four appearing to answer to both tests [section 104, p. 31].

42. The animals which had yielded affirmative results to his tests of minute examination were not among the last five; they were in the group of cows with "moderate tuberculosis," and had given no result by feeding test-animals with meat from their carcases, though meat from one or two had, upon inoculation, responded to the test.

43. These were not the results to be expected from Dr. Martin's experiments, if he were really using muscular tissue (with its usual concomitants forming "meat substance") containing or not containing tuberculous matter among the fibres. He would not have expected to find himself repeatedly giving rise to tuberculous disease by the use of material in which no tubercle could be detected by his ocular tests. He might have expected, on the other hand, a more uniform affirmative result when he was experimenting with the two cows whose meat had shown to his eye, and his microscope, evidence of tuberculous matter; though he might have explained a failure to get such results by the small amount of tubercle discovered there. And certainly he did not expect to get, if he was using only such tuberculous material as was present in the muscular tissue of his 21 cows, the egregious irregularities which he observed in his feeding an inoculation experiments. He was dealing with a quantity of tuberculous matter supplied to him—not, he reasoned, from the muscular tissues that he had proposed to investigate, but somehow from the general carcase of the cow, and abundant in the matters he was inoculating just as it happened to be abundant in the general carcase; and insufficient in amount, until he came to the maximum amount in the general carcase, to re-act to the test of feeding, though (with smaller amounts in the carcase) he had sometimes got an answer to the more delicate test of inoculation.

44. Dr. Martin tried in vain to explain these unexpected results by a hypothesis that he had overlooked some minute tubercles in the small portions of meat that had been used by him in his feeding and inoculation experiments. Even this hypothesis would not account for all the observed facts. And he presently saw another consideration, of a different nature, which he might not have sufficiently taken into his account: the operations, namely, of the slaughterer and butcher.

45. Dr. Martin was not, at this stage of his researches, experimenting broadly about things in general taken from the carcase of an animal after slaughter, but he was trying to learn the distribution of tubercle in the body of the animal, in the hope of adding to our knowledge of the conditions which might give to meat the quality of injuring the consumer of the meat. Still, he was dealing with meat, as meat would be sold by the butcher. He had already sought, by discriminating between "trimmed" and "untrimmed" meat, to estimate the risk of including in his own specimens of meat the stuff which, for little else than for the sake of tidiness, the butcher removes in preparing his joint for sale, and that consist *inter alia* of bits of gland and serous membranes. But though he had been at some pains to secure that this trimming was done with efficiency, there proved to be no constant line between the trimmed and the untrimmed meat in its effect upon test animals.

46. He now came to see a real and considerable danger to the meat, of the same nature as that which he had previously sought to estimate when he was careful about the trimming of meat—a danger that was somewhat less obvious, but would be quite as real. This was, the probability of the meat becoming contaminated from the actual tuberculous lesions, present in other parts of the carcase, and conveyed from thence to the proper meat-substance by the hands, knives, and cloths of the butcher during the processes of flaying and dressing. This was a danger that would doubtless increase along with increased abundance of the material of tubercle in the carcase. "The

greater the amount of tubercle there is in the cow,* the more likely is the sticky caseous matter to get smeared over the carcase" [section 108, p. 32]; and much that was inexplicable in the results of feeding and inoculation of test animals would be rendered intelligible. Dr. Martin writes:—

"If we imagine that the meat gets contaminated accidentally in this way, it is easy to explain the irregularity of the results:—(1) how, for example, in cases of mild tuberculosis of the cow, the danger of contamination is not great, and therefore the meat does not get smeared to any extent during removal; so that no positive results were obtained by feeding, and only one positive result by inoculation, and this a case of local tuberculosis, showing a small dose; (2) how in cases of moderate tuberculosis, where chiefly the lungs and lymphatic glands in the thorax are affected (and so may be removed entire without incision of a tuberculous lesion), the meat, as in cases of mild tuberculosis, would not become much contaminated, and thus did not produce tuberculosis by feeding; and how in these cases the knife is more likely, accidentally, to incise a tuberculous lesion than in cases of mild tuberculosis, and that therefore the number of coses of positive inoculation is greater. . . ." "With generalised tuberculosis of the cow this danger would increase, since so many parts of the body are affected with the disease, so that in such cases we meet for the first time with positive results from feeding, but not uniformly positive. . . ."

"Taking all the results together, the method of removal of the meat, the results of inoculation and of feeding, one is driven to the conclusion that when meat is infective it commonly acquires its properties by being accidentally contaminated with tuberculous material during its removal from the carcase. This conclusion, it is evident, is one of great practical importance, bearing directly on the question of the condemnation of the meat of tuberculous cattle for human consumption. And it is evident, also, that the infective properties of meat might vary with different series of experiments; . . . the result depends on the care taken in guarding against contamination more than on anything else. The conclusion arrived at in part explains the extremely divergent results obtained by previous observers" [sections 110, 111, and 112, pp. 32 and 33].

47. The observations by Dr. Martin cannot altogether dispose of his hypothesis, that the unexpected affirmative results obtained by his feeding and inoculating experiments may have been due to the presence of unobserved tuberculous matter in the meat substance, possibly in the actual muscular tissue; but they certainly show another and more obvious way in which these results may have been brought about. To have demonstrated this intrinsic way of rendering dangerous the meat substance of tuberculous animals, is to destroy all evidence that might otherwise have been obtained respecting the wholesomeness or unwholesomeness of the proper meat-substance towards his test-animals.

We note, in passing, that this method of endangering the meat substance could not have been detected upon carcases from which the organs, together with any "grapy" deposit, had been removed. And it is pertinent to observe, in connection with a contamination so effected, that this extrinsic danger to harmless meat (or to meat that was, for all that is shown to the contrary, harmless), might just as well be encountered by meat from another animal (whether pig, sheep, or calf, ox or cow) that was perfectly free from tubercle, but only had happened to be the next animal brought to the same slaughterer.

48. Having regard to Dr. Martin's invariable failure to produce tubercular disease by feeding (though he sometimes did succeed by inoculating) test

* Dr. Martin's tuberculous cattle had habitually been obtained from cow-houses.

animals with the meat taken by him from cows with mild or moderate tuberculosis, and admitting his explanation of an affirmative result, sometimes seen when meat was being taken from cattle with advanced or generalized tubercle, we are prepared to believe with him that, if sufficient discrimination and care were exercised in taking meat from tuberculous cattle, a great deal of meat from them might, without danger, be consumed by the community. The practice of public abattoirs on the Continent appears to be founded on the same belief.

49. Dr. Martin, having shown that tuberculous material may be thus distributed through the carcase of an animal; and regarding the disease as being, at its early stages, a local disease, and its material as being, in the first instance, limited to the neighbourhood of the place at which it had originally entered the body, is ready to formulate certain precautions that could be taken for reducing to a minimum, so far as present knowledge extends, the danger to human consumers of meat by their partaking of tuberculous meat. He would advocate, as a principle, that the operations of slaughter and dressing should be done under skilled supervision, with the object of securing the removal and destruction of every part of a carcase that contained any tubercle whatever, and also the destruction of the whole carcase in cases where the animal was found to have advanced or generalized tuberculosis. He indicates, for the assistance of any meat-inspector, various evidences of the disease having reached the more serious stage. For the rest, Dr. Martin sees no objection to the sale of meat-substance from carcases which have shown only localized tuberculosis, and from which every particle of tubercle has been skilfully removed; provided always, that, in every subsequent process of preparing the meat for sale, due care be taken to guard the saleable portions from contamination by tuberculous matter.

50. Reporting upon his 21 tuberculous cows, from his present standpoint, Dr. Martin tells us that, if his ideal precautions had been in force, the meat of *nine* cows would have been condemned, and the meat of the other *twelve* might have been sold.

51. It is hardly necessary to point out that little evidence about the more serious degrees of tuberculosis in the animal would be discoverable in carcases from which the organs had been removed; and that this is habitually the case with so-called "dead meat," whether English or foreign. Still, there are indications in such a carcase, to the eye of an experienced inspector, of the more dangerous forms of tuberculosis having existed in the animal.

52. Dr. Martin's suggestions are, in our judgment, based on well-ascertained pathological facts. We have no doubt that the supervision which he recommends would tend, in an important measure, to the security of the public. But we are well aware that the difficulties of such supervision are so great, that many years must elapse before any measure of an effectual kind can be carried into practice.

53. In the meantime, we venture to express our confidence that the precise information which has now been gained as to the nature, extent, and limitation of the risks which arise from the consuming of the meat of tuberculous animals, may be of value to those who have concern with our meat supplies, in guiding them to the adoption of such precautions as may, under present conditions, lie within their power.

(*b.*) *Circumstances determining danger from Milk.*

54. Proceeding to consider the *Milk* of tuberculous animals, our problem about the presence or absence of tuberculous matter becomes simpler. We are not, then, examining solid structures about which tuberculous matter, when once admitted in the body, has to travel by a slow growth of its bacilli among the solids, or by tardy convection along microscopic lymph channels;

but we have to do with a secretory apparatus, giving off quantities of a liquid perfectly adapted for the maintenance of tubercle bacilli, and specially adapted for their transmission to other soils. Dr. Martin's tests are now far more easy of application; moreover, the complications introduced by operations of slaughtering and dressing do not here exist; so that the question of the conditions for any prejudicial effect resulting from the use of *Milk* from tuberculous cows, can be determined with correspondingly greater ease and accuracy.

55. Dr. Martin made experimental observations on milk taken (with an abundance of care) from 17 cows; from 15 suffering, as he judged—and as was afterwards proved *post-mortem*—from tuberculous disease; and also on that taken from two other cows which were found, after slaughter, to have no tubercle, but to be suffering under some other complaint.

56. He gives the following account of nine cows out of the total 17, and his account is of wider interest than for the experiments under our immediate consideration:—

"During the course of the investigation, nine cows with disease of the udder were purchased by the Commission. . . . They were all purchased with the idea that the disease of the udder was tuberculosis, the diagnosis being made by a veterinary surgeon, and on the ground that the cow was tuberculous, from the wasting or cough, or was probably tuberculous, and that the udder was diseased, and therefore tuberculous. Of the four cows in which the udder disease proved to be non-tuberculous, two showed tuberculosis of the internal organs, and two showed no tuberculosis anywhere, one of these latter having a sub-diaphragmatic abscess, the other, a thin cow, with the first calf, showing no disease anywhere in the body, except the udder. If reliance be placed, therefore, on the general condition of the cow, and on the physical examination of the udder, an accurate diagnosis of tubercular disease of the udder is not possible." [Section 159, pp. 41 and 42.]

57. The milk yielded by the seventeen cows under observation, was found, in the case of some, to have the characters of normal milk, in the case of others, to have various abnormal characters. Dr. Martin could not trust, for evidence of the presence or absence of tuberculous matter in the milk, to any indications obtained from the appearance of the milk, or from his chemical examination of the milk.

58. Of his 15 tuberculous cows, eight had their udders in a healthy condition; two (as above-recorded) had udder disease, which was proved, after slaughter, not to be tuberculous; and the remaining five had udder disease, proved *post-mortem* to be tuberculous in nature.

59. Applying to the milk, furnished by the seventeen cows, the three tests before described as being available for the detection of tuberculous matter, Dr. Martin obtained the following results from his different groups of cows:—

(*a.*) The eight tuberculous cows which had healthy udders, showed him no tubercle bacilli whatever in the milk of any one of them; 41 test animals fed with their milk, remained perfectly free from tuberculous disease; 28 test animals inoculated with their milk, also remained quite free from tuberculous disease.

(*b.*) The two tuberculous cows which had udder disease, found *post-mortem* not to be tuberculous in nature, showed him no tubercle bacilli in their milk. Three test animals, fed with their milk, and 14 other test animals, inoculated with their milk, remained, all of them, perfectly free from tuberculous disease.

(*c.*) Of the five tuberculous cows which had udder disease, found *post-mortem* to be of tuberculous nature, three showed him tubercle bacilli in their milk. He could not find tubercle bacilli in the milk of the other two. With milk from the three cows, 15 test animals were

fed, with the result of producing tuberculosis in every one of them. With milk from one or other of the same three cows, 13 test animals were inoculated, with the result of all 13 acquiring tuberculous disease. The milk of the fourth cow (one of those which had not shown tubercle bacilli) was used to feed 10 test animals, and produced tuberculosis in four of them. Inoculated into six test animals, all of them became tuberculous. The milk of the fifth cow (in which, also, no tubercle bacilli had been seen), was used to feed two animals, but without result. Yet, when it was used to inoculate two other animals, both of them acquired tuberculous disease.

(*d.*) It remains to note these tests as applied to the milk of the two cows found after slaughter to be suffering under another disease, but not tubercle. The results were:—no tubercle bacilli found in the milk of these cows; inoculated into 17 test animals, it did not produce tuberculosis in any one of them; milk from one of the cows, however, in some test animals gave rise to various abscesses.

60. According to our experience, then, the condition required for ensuring to the milk of tuberculous cows the ability to produce tuberculosis in the consumers of their milk, is *tuberculous disease of the cow affecting the udder.** It should be noted that this affection of the udder is not peculiar to tuberculosis in an advanced stage, but may be found also in mild cases.

61. Further, with reference to this disease, Dr. Martin writes: "The milk of cows with tuberculosis of the udder possesses a virulence which can only be described as extraordinary. All the animals inoculated showed tuberculosis in its most rapid form" [section 148, p. 39]. Dr. Woodhead, investigating, for his own purposes, the effects of unboiled milk, speaks in similar terms of this virulence of milk derived from tuberculous udders and inoculated into test animals.—The two observers had occasion to use milk from a cow that had tuberculous disease in one quarter only of the udder; and they found the milk from the other three quarters to be perfectly harmless on inoculation; but the mixed milk taken from the four teats was to all appearance just as virulent as the milk from the diseased quarter.—Butter, skimmed-milk, butter-milk, obtained from the milk of a cow having tuberculous udder (by the usual processes, but with complete precautions against accidental contamination of articles used in the manufacture) all contained tuberculous matter actively injurious to test animals.

62. And not only this virulence, but the rapidity with which milk can obtain its harmful quality, attracted Dr. Woodhead's attention. He reports, "A most important point is that the spread of tubercle in the udder goes on with most alarming rapidity; this I was able to observe in the cows constantly under observation, but I have also noticed on several occasions during the interval between fortnightly inspections carried on along with a veterinary surgeon, that the disease has become distinctly developed. It may be, of course, that the early evidence has been overlooked at the previous inspection, but whether this is the case or not, the spread of the disease was so rapid as to afford very good ground for alarm. The very absence of any definite sign in the earlier stage is one of the greatest dangers of this condition" [section 104, p. 143]. And both Dr. Martin and Dr. Woodhead insist that no tuberculous animal of any kind should be allowed to remain in a dairy.

63. The withdrawal from dairies of every cow that had any disease whatever of her udder would form some approach to security against the serious danger incurred by man from the use of tuberculous milk, but it would not be an adequate security. The presence in a dairy of a tuberculous cow, as Drs.

* We have been told by various observers that animals have become tuberculous after being fed with milk from tuberculous cows having no appreciable disease of their udders; evidently, if this does occur, it can be but seldom.

Martin and Woodhead have shown, is a decided source of danger to the public, especially having regard to what we have learnt respecting the rapid development of tuberculosis in the udder, and the degree of danger to milk consumers incurred by the invasion of the udder in tuberculous cows.

64. It follows from the observations here recorded, that it is of supreme importance to the consumers of milk that the existence of any tuberculous disease of the udder should be ascertained without delay. Now there is no difficulty whatever about recognising the presence of *some* abnormal condition in a cow's udder, and the presence of such condition—whatever it be—demands that the judgment of a responsible expert should forthwith be obtained about its nature: unless indeed the owner prefers to slaughter the cow without delay. If the expert finds tubercle bacilli in the milk, the cow has dangerous tuberculosis of the udder. If he does not find them, he may apply the further test of inoculating some susceptible animals with the milk, and thereby learn the nature of the udder disease. By this test he will very rarely be misled. Obviously the cow must be in seclusion, and every particle of her milk must be treated as highly dangerous, during any delay that can be permitted for diagnostic purposes, and until the disease has been proved not to be tuberculosis.

Influence of cooking: (a.) Upon tuberculous meat.

65. Dr. Woodhead's inquiries as to the influence of cooking processes upon tuberculous matter present in meat and milk were begun by observation upon *Meat* actually taken from animals with various degrees of tuberculosis. As may well be supposed, he obtained little information from those cases where the disease existed in only a mild or moderate degree; for these were the cases where the meat in an uncooked condition had been used by Dr. Martin to feed test animals, but without result. Going on to the cases of advanced or generalised tuberculosis in the original animal, Dr. Woodhead obtained only negative results by feeding guinea-pigs with the meat after cooking. He did not make many experiments by inoculation of the cooked material, inferring from his observations with feeding that ordinary cooking had sufficed to destroy the harmful quality of tuberculous matter so far as the required heat had penetrated into the substance of the meat.

66. It remained to be seen what was the requisite degree of heat, and the penetrating powers of heat, through samples of meat, during various periods of time, and according to various processes of cooking. For here there was no prospect of acting instantly upon every particle of tuberculous matter, or it would be enough, Dr. Woodhead found, to subject every particle of it to a boiling temperature for a single instant. The question was of the prolongation of lower degrees of heat for sufficient time to destroy the mischievous quality of tuberculous particles situated in the substance of meat at one or another distance from the surface.

67. Dr. Woodhead undertook the investigation of this complex problem with his customary diligence, and states his results at considerable length. He had to deal with organs and tissues differing much among themselves in their power of conducting heat, though they were equally liable to be invaded by tubercle. Of course he desired to employ in his experiments some actual meat substance known to contain tuberculous matter within its interior; but he had no such material at hand. So he was fain to prepare some specimens artificially, sometimes by injecting tuberculous matter to a known depth into a joint, sometimes by smearing such matter on slices of meat and forming the whole into a compact mass. Such masses, without the intentional pollution, are known to butchers as "rolls" of meat.

68. With specimens of meat so prepared, Dr. Woodhead noted the temperatures at various depths below the surface, during various periods of

boiling or roasting, and, at the conclusion of the process, took the central portions and used them for feeding and inoculating test animals. For his feeding experiments, he presently came to prefer pigs to other test animals, finding them to be more readily than others affected by tuberculous material in their food. The results at which he arrived are comprised in the following conclusions, and we do not doubt their accuracy:—

"In the boiling and roasting experiments, as ordinarily carried out in the kitchen, the temperature, however high it may be near the surface, seldom reaches 60° C. [140° F.] in the centre of a joint, except in the case of joints under 6 lbs. in weight. Ordinary cooking is quite sufficient to destroy any smeared material that remains on the outer surface of the meat, *but it cannot be relied upon in the slightest degree to render innocuous the same smeared material when in the centre of a roll*" [section 94, p. 134]. The italics are Dr. Woodhead's. In another place he says: "Ordinary cooking, such as boiling, and more especially roasting, though quite sufficient to sterilise the surface, and even the substance for a short distance from the surface of a joint, cannot be relied upon to sterilise tubercular material included in the centre of rolls of meat, especially when these are more than 3 lbs. or 4 lbs. weight. The least reliable method of cooking for this purpose is roasting before the fire, next comes roasting in an oven, and then boiling" [section 102, p. 140].

69. Dr. Woodhead is careful to make special mention of these "rolls." He had made them for his own experimental purposes; but such rolls of meat prepared by a slovenly butcher, smearing his slices with matter from tuberculous glands, or perhaps including some tuberculous membrane in his roll, would probably form the maximum of danger to meat consumers. No cooking operations would be likely to destroy tuberculous material which had been thus sedulously wrapped up. In connection with Dr. Woodhead's inquiries, the use of raw meat-juice, as a special form of food for delicate children is not to be forgotten.

(*b.*) *Upon Tuberculous Milk.*

70. Passing from meat to investigate the effect of cooking upon *Milk*, Dr. Woodhead found himself dealing with food that lent itself readily to experimental observation, and that could (as we have seen) become, at short notice, very potent for harm to its consumers—a food too, which, while largely used in cookery, is habitually drunk by English people in a raw state.

71. His report on cooking tuberculous milk has for its central idea to advocate the boiling of all cows' milk that can by any chance contain tuberculous material.

72. The following contains Dr. Woodhead's views on the question; it will be seen that they led him into further inquiries:—

"The most deadly tubercular material can be rendered absolutely innocuous, so far as any spreading infective disease is concerned, by the action of a temperature at which water boils. We have evidence, *see* Part xii. and xiii. (milk) that a lower temperature than this is sufficient to bring about the same results when allowed to act for a longer time, but for the present it is sufficient to state that boiling, for an instant even, renders the tubercle bacillus absolutely innocuous" [section 77, p. 122.]

73. Accordingly, in the quoted sections of his paper, he records experiments with milk containing tuberculous matter, subjected to various temperatures, and afterwards used to feed or to inoculate test-animals of various sorts, but preferably pigs. His object was to discover some method of cooking tuberculous milk that should be safe to consumers, and that should not be liable to objection by them on any score of flavour imparted to the milk by boiling.

74. As the outcome of his numerous experiments, Dr. Woodhead tells us

that "sterilisation" towards tubercle can be effected by heating the milk in a water-bath, continuing the process "until the temperature has risen from 80° C." (176° F. to 198° F.), a result which in most cases requires, he says, each several quart of milk to be in the water-bath for some half-hour. He has not only demonstrated to our satisfaction the innocence of tuberculous milk treated in this manner; he tells us of pigs (Table XLIII.) succumbing to tuberculosis after feeding with tuberculous milk heated to 80° C. (176° F.) for ten minutes, without giving adequate data about the action or inaction of the milk after long exposure to this temperature; and his experience of the higher temperature is derived from guinea-pigs only, not from pigs; though, as he has shown, guinea-pigs do not supply such good evidence as pigs about the influence of heat upon tuberculous matter in use as food.

75. We would cite Dr. Woodhead's doctrine:—It cannot be too strongly insisted on that so long as a single animal is affected by tuberculosis on injection of the heated tubercular milk, so long must the milk be held to be dangerous [section 111, p. 146.] We understand him to state here that, whatever have been the degree of heat applied, and whatever the duration of the application, however intense the method (injection) of applying the subsequent test, and however delicate the animal towards the test, no matter:—if a single animal succumb to the milk-test after the heating, that heating has not been such as to make tuberculous milk safe for food. And, in view of the demonstrated dangers of milk from tuberculous udders, and the possibility of such dangers having to be encountered by human children among other animals, we cannot hesitate to assent to Dr. Woodhead's doctrine. For avoiding such danger, we prefer to "render the tubercle bacillus absolutely innocuous" by "boiling, for an instant even," to the alternative of such "sterilisation" as he would allow. Nor, if we regarded the described method as certain in its efficiency, should we hesitate to prefer to any such "sterilisation" the simple expedient of putting every suspected milk over the fire, and taking it off when it boils.

76. In the course of Dr. Woodhead's observations on the degrees of heat wanted to destroy the operation of tuberculous matter in milk, he noted the effects upon tuberculous material resulting from temperatures insufficient for actual destruction. He could, by the operation of certain lower temperatures, obtain from "the most deadly tuberculous material" contained in milk, a weaker sort of tuberculous matter, so tardy in its operation on test animals as to simulate the lower forms of consumption seen in the human subject, or when used to feed pigs—animals having some specialties of throat structure like that of man—gave rise to chronic enlargements of the throat glands, resembling the scrofulous glands so common in children. These observations are of much interest to us, not least because they suggest the possibility of widely prevalent forms of human tuberculosis owning an origin in milk.

Recapitulation.

77. To recapitulate the information we have obtained from the witnesses who favoured us with their experience, and from the researches of our three inquirers, together with our own conclusions:—

We have obtained ample evidence that food derived from tuberculous animals can produce tuberculosis in healthy animals. The proportion of animals contracting tuberculosis after experimental use of such food, is different in one and another class of animals: both carnivora and herbivora are susceptible, and the proportion is high in pigs. In the absence of direct experiments on human subjects, we infer that man also can acquire tuberculosis by feeding upon materials derived from tuberculous food-animals,

78. The actual amount of tuberculous disease among certain classes of food-animals is so large as to afford to man frequent occasions for con-

tracting tuberculous disease through his food. As to the proportion of tuberculosis acquired by man through his food or through other means, we can form no definite opinion, but we think it probable that an appreciable part of the tuberculosis that affects man is obtained through his food.

79. The circumstances and conditions with regard to the tuberculosis in the food-animal which lead to the production of tuberculosis in man are, ultimately, the presence of active tuberculous matter in the food taken from the animal and consumed by the man in a raw or insufficiently cooked state.

80. Tuberculous disease is observed most frequently in cattle and swine. It is found far more frequently in cattle (full grown) than in calves, and with much greater frequency in cows kept in town cow-houses than in cattle bred for the express purpose of slaughter. Tuberculous matter is but seldom found in the meat substance of the carcase, it is principally found in the organs, membranes and glands. There is reason to believe that tuberculous matter, when present in meat sold to the public, is more commonly due to the contamination of the surface of the meat with material derived from other diseased parts, than to disease of the meat itself. The same matter is found in the milk of cows when the udder has become invaded by tuberculous disease, and seldom or never when the udder is not diseased. Tuberculous matter in milk is exceptionally active in its operation upon animals fed either with the milk or with dairy produce derived from it. No doubt the largest part of the tuberculosis which man obtains through his food is by means of milk containing tuberculous matter.

81. The recognition of tuberculous disease during the life of an animal is not wholly unattended with difficulty. Happily, however, it can, in most cases, be detected with certainty in the udders of milch cows.

82. Provided every part that is the seat of tuberculous matter be avoided and destroyed, and provided care be taken to save from contamination by such matter the actual meat substance of a tuberculous animal, a great deal of meat from animals affected by tuberculosis may be eaten without risk to the consumer.

83. Ordinary processes of cooking applied to meat which has got contaminated on its surface are probably sufficient to destroy the harmful quality. They would not avail to render wholesome any piece of meat that contained tuberculous matter in its deeper parts. In regard to milk we are aware of the preference by English people for drinking cows' milk raw—a practice attended by danger, on account of possible contamination by pathogenic organisms. The boiling of milk, even for a moment, would probably be sufficient to remove the very dangerous quality of tuberculous milk.

84. We note that your Majesty's gracious commands do not extend to enquiry or report on administrative procedures available for reducing the amount of tuberculous material in the food supplied by animals to man, and we have regarded such questions as being beyond our province.

All which we humbly submit for your Majesty's gracious consideration.

(L.S.) (Signed) GEORGE BUCHANAN, *Chairman.*
(L.S.) G. T. BROWN.
(L.S.) J. F. PAYNE.
(L.S.) J. S. BURDON SANDERSON.
(L.S.) C. E. LEOPOLD B. HUDSON, *Secretary.*

April 3rd, 1895.

FURTHER REPORT BY PROFESSOR G. T. BROWN, C.B.

1. With the views expressed in the Report, I concur, but I am unwilling to allow the alleged grievances of farmers and others engaged in the meat trade to pass altogether unnoticed.

2. For some years past complaints have been made of losses inflicted on stockowners, owing to the seizure and confiscation of carcases of animals found to be more or less affected with tubercle on *post-mortem* examination, although during life they had not exhibited any symptoms of the disease.

3. It was frequently urged that tuberculosis should be included among the diseases which were dealt with under the provisions of the Contagious Diseases (Animals) Acts, but it was not shown how the provisions of these Acts could be made to apply to the losses which were the subject of complaint. The matter was not, however, dismissed without due consideration of all the circumstances.

4. Early in 1888 the Lord President appointed a Departmental Committee to consider, among other matters, the best method of dealing with tuberculosis, with a view of checking the progress of the disease; the Committee reported "that, in their opinion, tuberculosis should be included in the diseases in the Contagious Diseases (Animals) Acts, for the purposes of slaughter and compensation for the seizure and slaughter of diseased animals exposed in markets or fairs," and there was also a recommendation to the effect that it should be made an indictable offence to breed from animals which were known to be affected with tubercle.

5. These recommendations were not adopted by the Privy Council on account of serious difficulties which were emphasized in the Report relating to diagnosis, compensation in the case of pedigree cattle, and the improbability of the disease being finally extinguished; indeed, the Committee only ventured to express a hope that tuberculosis might gradually be reduced in its extent. These points are discussed at length in the Annual Report of the Veterinary Department for the year 1888.

6. It may be observed that during this period experiments were being carried on under the direction of the Department, for the purpose of testing the infectivity of meat of tuberculous animals. These experiments are described in the Annual Report for the Veterinary Department of the year 1890.

7. In my own investigations meat was taken from tuberculous animals without any antiseptic precautions, and the meat was trimmed with the same knife which was used to cut it up, the object being to represent as nearly as possible the conditions under which such meat would be trimmed and cut into portions by the butcher. Animals fed on raw meat so collected and prepared became the subjects of tuberculosis to the extent of 75 per cent. Further, that such contaminated meat was not necessarily rendered harmless by the ordinary process of cooking was demonstrated by further experiments, which are described in the annual report of the Department for the year 1891, in which is also recorded another set of experiments carried on at the same time by Professor McFadyean. In this inquiry every precaution was taken to prevent contamination of the meat, and the results in each case were negative. The two sets of experiments certainly suggested that meat of tuberculous animals, even when wholesome in itself, could easily be rendered infective by being brought in contact with tuberculous matter in the ordinary processes connected with the slaughter and dressing of animals for food.

8. Meanwhile, the seizure and destruction of carcases of animals found to be effected with tubercle were strictly carried into effect in some districts, and in April 1890 the matter was brought prominently under the notice of the Government by a large and representative deputation which waited on the President of the Local Government Board and the President of the Board of Agriculture to urge that something should be done to recoup farmers and meat salesmen for losses sustained by what they considered to be the unnecessary confiscation of carcases only slightly affected with tubercle.

9. In reply, the members of the deputation were assured that their representations should be carefully considered, and in July of the same year a

Royal Commission on Tuberculosis was appointed by Royal Warrant "To inquire and report what is the effect, if any, of food derived from tuberculous animals on human health; and, if prejudicial, what are the circumstances and conditions with regard to the tuberculosis in the animal which produce that effect upon man."

10. After a long and careful inquiry the Commission was enabled to answer the questions suggested in the reference as far as it is possible to answer them.

11. Numerous experiments which were conducted by experts acting under the direction of the Commission left no room for doubt as to the ability of meat from tuberculous animals to act prejudicially on animals which consumed it in a raw or imperfectly cooked state.

12. Witnesses who were examined on behalf of the meat trade did not deny that meat in certain stages of the disease was unfit for food, while, in their opinion, in other less advanced stages of the disease it might be eaten without danger when the tuberculous deposits and diseased organs had been removed. These practical men will be satisfied to learn that in accordance with the terms of the reference the circumstances and conditions which render a tuberculous carcase dangerous have been carefully considered in connection with the experimental evidence, and that it is possible to admit, in favour of the witnesses' contention "that a great deal of meat from tuberculous cattle might without danger be consumed by the community." But this admission is qualified by the recognition of a degree of risk which the witnesses themselves admitted, *i.e.*, the risk of the infection of meat not only of the tuberculous carcase, but also of other carcases in the same slaughter-house by the agency of knives and other apparatus used in "trimming" or cutting off the tuberculous material, however small in quantity.

13. It was allowed by the witnesses for the meat trade that obviously bad meat from tuberculous animals should be destroyed without hesitation. They will hardly venture to deny the importance of precautionary measures being taken to prevent the accidental infection of good meat in the act of dressing the tuberculous carcase. Nor can they hesitate to admit that preventive means to be reliable must be applied under competent supervision.

14. Undoubtedly the chief grievance of the meat salesman is the seizure and destruction of the carcases of animals which immediately before slaughter were, or at least appeared to be, in perfect health and good condition. To avoid this sacrifice of what the witnesses considered to be wholesome food they suggested that a strict inspection of animals before slaughter should be insisted on, and that the authorities should take possession of all diseased animals, and compensate the owners. The very obvious abuses with which such a system would soon be associated need not be referred to in detail. With the present improved means of diagnosis one benefit would doubtless be gained. Tuberculous animals might be removed to slaughter-houses, reserved for the purpose, in which the proper means might be provided for destroying or sterilising meat as might be necessary, without any risk of contaminating the carcases of healthy animals.

15. There would be difficulties to be overcome in carrying the proposed method into effect, but it need not be assumed that the scheme is impracticable.

16. In regard to the question of compensation, which from the point of view of stockowners and meat salesmen is an essential feature of the scheme, I can only remark that the subject is so entirely outside the terms of the reference that I should not feel justified in offering suggestions. I may, however, be permitted to remark that the hardships of which meat traders complain would be materially lessened under a properly regulated system of meat inspection by persons competent to judge as to the extent and character

of the tuberculous deposits, and to devise and carry into effect the necessary means for preventing the accidental contamination of meat in the way which has been described.

(L.S.) (Signed) G. T. BROWN.

April 10th, 1895.

Proceedings of the Royal College of Veterinary Surgeons and Veterinary Medical Societies, etc.

ROYAL COLLEGE OF VETERINARY SURGEONS.

Examinations in London.

THE Written Examination in the various classes was held on May 13th, in London, at the Examination Hall of the Royal College of Physicians and Surgeons, Victoria Embankment, and the Oral Examinations at a meeting of the Court of Examiners, held at 10, Red Lion Square, W.C., on and between May 14th and 16th inclusive, and the practical portions of the Second and Final Examination at the Royal Veterinary College, Camden Town, on and between May 14th and 18th inclusive.

The following students passed their Final Examination:—Messrs. H. Davies, T. B. Bindloss, W. Davies, M. C. Tailley, E. Bell, A. C. Oliver, C. A. Powell, G. N. Tomlinson, A. E. Boyer, F. B. O. Taylor, R. G. Saunders, W. W. Scales, F. B. Lowe, W. Anthony, J. E. Adams, R. W. Balls, H. Bibbey, J. Balden, J. Carter, W. Burt, J. G. Coley, W. H. Chappell, F. W. Dowell, J. Dunstan, V. Gazi, O. G. Hills, J. W. Holmes, H. Keylock, F. Lindsay, W. Millar, J. P. Heyes, S. Masterman, R. G. Stallard, J. W. Senior, *H. P. Standley, J. B. Southey, W. N. Thompson, J. G. Taylor, E. F. Wood, J. H. Wynne and S. Young.

The following students passed their Second Examination:—Messrs. F. R. Brandt*, H. M. Durrant, S. Dixson, P. E. Hoyland, W. C. Lowe, *A. Maynard, W. E Murts, C. E. Perry, W. M. Power, C. W. Stanley, F. W. Trydell, *C. W. J. Tennant, *F. T. Trewin, *F. A. Verney, *S. Woodward, C. H. Stephens, *S. T. Amos, J. Buckingham, W. H. Brown, F. Crowhurst, *P. M. Evershed, †H. Gillard, *A. F. Harber, *A. J. Hines, *T. W. Heelis, †R. W. Hall, G. H. Kitchen, *P. Lloyd, A. Miller, *A. Olver, D. J. Quinlan, C. W. B. Sikes, W. G. Taylor, †J. T. Thurstan, *F. T. Walder, *B. Woolatt, *B. E. Wooster and *B. Wood.

The following students passed their First Examination:—Messrs. H. Billington, *M. Glasse, R. L. Green, G. Sykes, *C. W. Abrams, P. Broad, D. Crole, A. M. Dowling, *F. S. Bain, E. A. Batt, R. C. Bell, A. H. Carey, *W. Cranston, O. S. Fisher, H. Gamble, F. W. Pawlett, F. S. Probyn, E. Peacy, †C. Radway, T. J. Symes, R. Stokoe, J. W. B. Sarjeant, P. W. Smith, C. M Sharpe, *P. J. Simpson, E. A. Wilshaw, H. A. Woodruff, *T. Wolsey, W. R. Williams, *A. Whicker.

ARTHUR W. HILL,
Secretary to the Board of Examiners.

ROYAL COLLEGE OF VETERINARY SURGEONS.

THE Annual General Meeting of the members will be held at the Royal College of Veterinary Surgeons, Red Lion Square, London, W.C., on Wednesday, June 5th, 1895, at twelve o'clock, to elect nine members of Council for the ensuing year, eight in the place of those who retire by rotation (but who are eligible for re-election), and one in the place of Thos. Walley, deceased, and to receive the Report of the Council.

Marked thus * passed with Second Class Honours.
Marked thus † passed with First Class Honours.

The Annual Dinner will take place at the Holborn Restaurant, Holborn, W.C., in the evening, at six o'clock. Tickets 21*s.*

Notification of intention to dine should be sent to the Secretary as early as possible.

LIST OF THE PRESENT MEMBERS OF THE COUNCIL.

	Attendances for past year. Council.	Committee.
Gen. Sir F. Fitzwygram, Bart., M.P.	5	—
R. C. Trigger ..	10	18
J. Penberthy ..	13	16
J. A. W. Dollar ..	11	18
A. W. Mason ..	10	7
T. D. Lambert ..	1	—
James Fraser ..	9	7
J. Abson	11	8
Thos. Walley (deceased)	—	—
W. J. Mulvey ..	12	27
J. McFadyean ..	12	6
W. Williams ..	4	4
F. W. Wragg ..	12	29
A. Lawson ..	9	9
G. Elphick ..	8	6
W. A. Edgar ..	11	13
E. Faulkner ..	5	7
H. Kidd	8	8
H. Hunter ..	3	—
H. Thompson ..	3	2
E. S. Shave ..	5	6
J. E. Peele ..	7	3
J. McCall	4	2
J. F. Simpson ..	9	30
W. O. Williams ..	6	2
C. Hartley ..	7	8
J. Donald (resigned)	—	—
M. Hedley (resigned)	3	2
A. W. Wheatley ..	8	6
W. Hunting ..	12	23
G. A. Oliphant (resigned)	6	4
J. Nisbet	2	3

Note.—The last eight names retire by rotation, but are eligible for re-election if nominated.

NEW VETERINARY COLLEGE, EDINBURGH.

THE distribution of prizes at the termination of Session 1894-95, took place on Thursday, May 16th. The following is a list of prize-winners :—

Principal's £20 Prize—T. C. Dick.

HORSE PATHOLOGY.

Medal—Jas. McPhail.

First Class Certificates—Jas. Spreull and T. C. Dick.

Second Class Certificates—J. C. De Ville, R. C. Robinson, R. H. Knight, J. T. Allen, J. E. Mills, F. B. Byrne and F. W. Morris.

CATTLE PATHOLOGY.

Medal—Jas. Spreull.

First Class Certificate—R. C. Robinson and T. C. Dick.

Second Class Certificate—J. C. De Ville, F. W. Morris, R. J. Murnane and F. B. Byrne.

MATERIA MEDICA.

Medal—T. C. Dick.

First Class Certificate—J. Spreull, J. E. Mills, R. C. Robinson and R. H. Knight.

Second Class Certificate—J. T. Allen and J. C. De Ville.

ANATOMY.

Medal—J. B. Collyer.

First Class Certificate—W. Ogilvy and W. L. Jones.

Second Class Certificate—H. H. Ferguson, R. C. Cochrane, W. H. Savage and R. D. Williams.

PHYSIOLOGY.

Medal—W. L. Jones.
Certificates of Merit—W. Ogilvy, A. M. Porteous, W. H. Savage and R. C. Cochrane.

HISTOLOGY.

Medal—W. L. Jones.

PROSECTOR IN ANATOMY.

Certificate—J. E. Mills.

JUNIOR ANATOMY.

College Medal—A. Constance.
Highland and Agricultural Society Medal—G. J. Roberts.
First Class Certificate—A. Marrison.
Second Class Certificate—J. Paul.

CHEMISTRY.

Medal—G. J. Roberts.

BOTANY.

Medal—J. Paul.

PHYSICS.

Medal—John Paul.

DEMONSTRATORS OF MORBID ANATOMY.

Medals—J. O. Richardson and Jas. McPhail.

CURATORS OF MUSEUM.

Medals—R. C. Robinson and R. C. Cochrane.

PRACTICE.

Medals—F. B. Byrne and R. J. Murnane.

EDINBURGH VETERINARY MEDICAL SOCIETY'S PRIZES.

President's Special Medal—Jas. Spreull.
Medal Essay—J. E. Mills.
Communication—J. E. Hardie.
Essay Certificates—H. S. Jones.
Communication Certificate—J. Spreull.

Secretary—J. T. Allen.
Treasurer—T. O. Richardson.
Librarian—G. F. Liddle.

At the recent examination held by the Royal College of Veterinary Surgeons, the following students were successful :—

CLASS A.

G. E. Hamilton, Sydney Robson, F. R. Sheppard, J. W. Bee, J. Bradley, E. Marrison, G. J. Roberts, J. Paul.

CLASS B.

J. Connell, A. W. Findlay, F. Fountains, F. Liddle (2nd Honours), A. Munro, W. L. Jones, J. B. Collyer, W. H. Savage, A. M. Porteous, H. Webb 2nd Honours).

CLASS C.

J. Spreull, Dundee; J. Mulqueen; T. Dick, Edinburgh; T. Buck, Ashby-de-la-Zouch; T. O. Richardson, Poulton-le-Fylde; F. W. Morris, Bolton; F. Pickering, Durham; F. Douthwaite, Beverley; B. Fowler, Greenock; A. S. Milne, Ladykirk; J. E. Mills, Dolgelly; R. C. Robinson, Carlisle; J. A. B. Macgowan, Millom, Cumberland; F. B. Byrne, Cork; F. Shore, St. Boswell.

THE CENTRAL VETERINARY MEDICAL SOCIETY.

(*Continued from page* 371.)

"THE LEGAL ASPECT OF SOUNDNESS."

Resumed Discussion.

MR. W. HUNTING, in resuming the discussion on Captain E. R. C. Butler's paper, said that he noticed that Captain Butler commenced his remarks by taking them at once into the law courts, but it occurred to him (Mr. Hunting) that the most important consideration in discussing the legal aspect of soundness was, how they could keep out of the law courts, and how they could keep their clients out of those courts, whether they accompanied them there as witnesses or as defendants. And the difficulty was one which would remain so long as human nature remained what it is. To begin with, the word "soundness"—if people would persist in using it—was interpreted as equivalent to perfection. "A horse must be sound or unsound," said a judge, and he (Mr. Hunting) heard Justice Field say that "just as a plate must be cracked or not cracked, so a horse must be sound or unsound." A horse might be very unsound and yet useful, and it was found impossible to abide by such rigid rules in actual practice. It must be remembered that the work of the world was done by the screws of the world, both men and horses; and soundness and usefulness were not always synonymous. Buyers and sellers of horses might be roughly divided into two classes—fools and rogues, but the biggest fool, as a rule, was the buyer; and the most difficult man the veterinary surgeon had to deal with was the man who knew least about a horse. Of all the clients one came across, the worst was the man or woman who didn't know—he or she was the most dangerous person to have to deal with. If, after examination, a horse went lame, say within a month, then to such persons the veterinary surgeon who passed the animal was either a fool or a rogue; even if the horse went lame within six months after examination, a similar verdict would be returned. And, indeed, some people were stupid enough to think that if a horse went lame after examination, the veterinary surgeon ought to have been able to anticipate its lameness. It was impossible to anticipate all the evils that might arise, and it was extremely difficult to word their certificates so as to do justice alike to their clients and to themselves. He took it, as Captain Butler said, that all that could be expected of the veterinary surgeon was the exercise of reasonable care and judgment. They might leave judgment out because, he believed, that no court of law would inflict a penalty upon a veterinary surgeon for an error of judgment. A court of law visited them with penalties if they were proved to have been guilty of negligence, and he himself some years ago had to pay £46, not for an error of judgment but for a piece of carelessness. He examined a nine-year-old horse with a spavined hock and, after a trial, advised his client that the animal would do the work he required, omitting to mention the fact of the spavined hock. Shortly afterwards the horse went lame and its owner entered an action against him. He defended it, but before the matter went into court, the opinion of the present Justice Cotton (then a counsel) was taken as to his liability; and the learned gentleman

advised him to pay the money, because he did not tell the buyer the animal had a spavined hock and therefore did not afford him the chance of using his own judgment fully and properly. In writing a certificate they must be careful to mention all patent defects. He was not going to follow Captain Butler into court. Time would not admit of this. With reference to his remarks about the judge, counsel, and jury, he agreed with him almost *in toto*; but Captain Butler did not seem to insist sufficiently upon the fact that even judges and juries, so far as horse knowledge went, might be placed in the two classes he (Mr. Hunting) had twice mentioned. If you had the pleasure of serving on a jury, you would find as a rule that on a jury there was, perhaps, one man who knew something about a horse and the other jurors would look up to that man as to a little god and he just did as he liked with the jury. A jury was an absolutely unreliable body; and they would find that for six cases that were settled right, six would be settled wrong. With regard to a veterinary surgeon's examination of a horse, and the nature of the certificate he gave, there was a personal equation in the case. Some veterinary surgeons were more careless than others; some were more experienced and intelligent than others; some were better observers than others, and some had a bit more tact. The man who had tact would, as a rule, be able to disguise his own ignorance, and, if he got into a mess, his certificate would be found to be so worded as to enable him to evade the law. It might, perhaps, be a cynical way of putting the matter, but as long as human nature is what it is, it was just as essential to word their certificates with tact, and keep outside the law, as it was to be perfectly certain of their pathological accuracy. Moreover, they were never altogether certain about their pathological accuracy, and were apt to say that this spavin would do no harm, or that splint would do no harm, when the event, as a rule, proved that it really did. In about the last paragraph of Captain Butler's address, he quoted Baron Parke's definition of soundness, remarking that "it resolves itself essentially into a question of usefulness, and provides that any disease, or alteration of structure from disease or accident, which does now interfere, or may in its ordinary course interfere, with the animal's usefulness, is unsoundness." What he (Mr. Hunting) had been saying was: let them accept that as law, and word their certificate so as not to be guilty of negligence, and use a little tact in any additions they might like to make to it. As a rule, an intending buyer picked out a horse for himself, and if he did not know anything about horses, still, he did not like others to find fault with his fancy; and if one ventured to find fault with its conformation, he would very likely be told to mind his own business. He (Mr. Hunting) did not think a veterinary surgeon should say anything about conformation unless a client specially asked for an opinion on the point.

Mr. SAMSON thought it behoved them in all instances of examining horses and writing certificates not only to look after their clients' interests but at the same time to be very careful in guarding their own. A horse might not be perfectly sound, but it might at the same time be a very useful animal and suited for the purpose for which an intending buyer wanted it. In that case it was needful to explain things formally to one's client and be very careful in advising him, otherwise the veterinary surgeon might get into trouble. Personally he preferred not to write certificates at all but to have a talk with his client. He found it much the better and safer plan to see his clients and explain matters to them. He would put an hypothetical case: Say he was commissioned to buy horses for a miller and a brewer respectively. The miller was prepared to go to £45 or £50 each for his animals, and did not care a jot whether the horse bought was sound or unsound so long as he had the veterinary surgeon's word that he would do the work required. If all clients were of that mind veterinary surgeons' work would be easier and safer than it

now is. Suppose on the other hand the brewer, whom the veterinary surgeon rarely saw personally, demanded a plain certificate whether an animal was sound or not. If that horse had the least scratch the veterinary surgeon would not dare pass it as sound, because he knew full well that if he did so the brewer would be speedily down upon him. He (Mr. Samson) never wrote a certificate without being very careful.

Professor MACQUEEN said with regard to the subject so ably introduced by Captain Butler, he had to remark that the legal aspect of soundness did not appear to him to concern very many practitioners. When a veterinary surgeon examined a horse for soundness he hoped that he did not approach the work with the terror of a law court in the distance. He understood the function of an examiner of a horse for soundness to be very similar to that of an expert who was asked to give an opinion upon a certain live thing—to wit a horse—either in a certificate or letter of advice, or in any other way he considered necessary, and for doing this he received his fee. He did not see the application of the title of Captain Butler's paper to the ordinary work of examining horses. With regard to the unfortunate position of a veterinary surgeon who was summoned into a law court because he happened to give a written opinion concerning a horse some weeks or months before, he (Professor Macqueen) held that the veterinarian need not commit himself in the box on the strength of what he had written, for he had a perfect legal right to qualify every item on a certificate. Let them remember that when an examiner gave a certificate regarding the soundness or unsoundness of a horse he did not do so under oath ; he simply gave a certificate for a fee, and when he got into the witness box he had a perfect right to modify or alter that certificate by the light of subsequent experience and various considerations which might have cropped up since his first examination. Unfortunately, too few, he believed, knew the right of the witness in the witness box and the result was that opposing counsel was apt to challenge the witness, and to shake the certificate in his face with the remark, "Did you write this, sir!" All that was what might be called "bluff." Passing to books, there was an excellent book entitled, "The Law of Horses," by D. Ross Stewart, a thoroughly well-grounded lawyer, published so recently as 1892, which contained the Veterinary Surgeons' Act, the Contagious Diseases (Animals) Act, and all the recent cases up to date and the latest decisions. He thought there was no better book required than that of Mr. Stewart. Then they should not forget the small book by J. Irving Lupton, F.R.C.V.S., on "Soundness and its Legal Aspect," in which he entered into the question of soundness and unsoundness from a veterinary point of view. There was also the work of ex-Professor Fearnley on "Examination of Horses as to Soundness." The profession did not suffer from want of literature on the question of soundness and, to some extent, its legal aspect. He hoped that if it should be the misfortune of anyone with the double qualification to undertake a new work he would not bear the application of Sheridan's remark, and be "indebted for his facts to his imagination, and for his wit to his memory." Objection had been taken by one or two speakers, to the old-fashioned formula of a certificate. "I certify" or "I hereby certify" seemed to be objected to. Some of the terms of the certificate were also considered objectionable, but if a certificate were given in fear of the law, it mattered little whether it bore on its face "I certify" or "I regard" or "I consider," or any other similar expression. It mattered nothing whether it bore the words "sound," "no unsoundness," "practically sound," or anything else approaching that definition. No one need hope to escape the law by such a quibble as that. Some seemed to think that by writing "I find this horse free from unsoundness," "I consider this horse has no unsoundness," was better than saying, "I consider this horse sound." If the case got into the law courts, the writer of a

certificate worded in this fashion, was just as likely to fail in his contention as the individual who plainly said "I consider this horse sound." There was further to be considered, the inclination of the purchaser. The buyer of horses in this country clung to a certificate or piece of paper bearing the word "sound," and he was afraid that in spite of all their efforts, they would never alter this feeling on the part of the purchaser. He could not sit down without complimenting Captain Butler on his excellent paper, and the exceptionally able manner in which he delivered it.

Mr. EDGAR said he could not refrain from saying a few words upon Captain Butler's very excellent paper. He was rather surprised, however, that they had not heard something more about what constituted legal soundness and unsoundness. Captain Butler very forcibly dwelt upon the procedure of law courts, upon the evidence adduced, and upon the certificates given, but it seemed to him (Mr. Edgar) that, after all, the practical point to the veterinary surgeon was what he had to call unsound. Taking into account the different classes of disease, or the different conditions which the veterinary surgeon found in examining horses, it appeared to him that the main contention rested, and always would rest, with the veterinary surgeon. For instance, some little time ago he (Mr. Edgar) saw a horse—one of a pair—which had been examined by a gentleman down in the Midlands and passed sound. Well, the horse I saw had distinct spavin in both hocks, went as stiff as a poker, and could hardly move across the stable. Had he been asked to examine the horse for soundness, his conscience would not have allowed him to certify it as sound. At the same time, knowing the first examiner well, he did not think that he wilfully misrepresented the condition of the horse. Therefore, it was a question of two opinions; and if the matter went to a law court, what was to be the decision? Then, again, as Captain Butler mentioned, it often happened, in their examination of a horse, that they could not definitely put their finger upon any part of the animal and say "That horse is absolutely unsound," but yet they felt confident there was such a condition—he would not say in its conformation, but in regard, say, to a curb, although there was no actual curb present—such a condition of limb as to lead one to form the opinion that in the course of a short time the horse would undoubtedly go lame. What could one do in a case like that? In justice to the seller could they say that the horse was unsound, and in justice to the buyer could they say it was sound? With respect to certificates, there were many clients who asked them to go and examine a particular horse and give them a certificate as to whether it was sound or unsound. Well, of course, if there were no witnesses present, it was only one man's word against another's; but if there was a witness present, their responsibility would be the same whether their declaration was made orally or in writing. Suppose the declaration to be oral, their words and meaning might be misconstrued. When, some years ago, he examined cattle under the Contagious Diseases Act, he was told by the authority to write "I certify" instead of "I have examined." He thought the former term was deemed more definite than the latter. Captain Butler or Professor Macqueen mentioned and rather condemned the predilections of sellers to have horses examined in order that they might hold certificates. He did not think they should condemn this inclination, as it afforded work for veterinary surgeons. If a seller liked to hold certificates as to the condition of the horses he was about to sell, he had a right to such certificates. But then they must always remember the period of time that elapsed between one veterinary surgeon examining a horse and another examining the same animal, It was quite possible for the latter to find defects that were not present at the former's examination. Perhaps, if such allowances were made, there would be less contention in courts of justice and fewer actions brought.

Mr. HURNDALL remarked that he should not feel satisfied if he allowed that

meeting to close without saying he felt indebted to Captain Butler for the able paper he had presented to them; and he, like Professor Macqueen, was particularly struck with the manner in which it was delivered. Captain Butler's delivery certainly gave a great deal of force to the points that he desired to bring out, and increased the interest with which he (Mr. Hurndall) listened to the paper. Reviewing that portion of the paper which referred to the legal aspect of soundness, he had arrived at the conclusion, as a practical deduction from a paper, as well as from his own costly and disagreeable experience in law courts, that if they could only establish relations between themselves and their clients, they would be able to carry out the suggestions of Mr. Samson of merely writing a letter expressive of their opinion. That relationship, if it could be established, would be more satisfactory to themselves, and, he believed, to their clients than the existing system. He did not know whether their experience was the same as his, but he should certainly like to see—if it were possible—a better understanding subsisting between their profession and horse dealers. He did not like the way in which he was sometimes eyed when he went to a horse dealer's yard, first by the master, secondly by the foreman, and thirdly by the man who ran the horse. The contempt which they seemed to have for the veterinary surgeon was only equalled by the contempt which the veterinarian had for these horsey individuals. He did not know whether they were under the impression that he was a sort of soft, and susceptible to bribes. He found that whereas some horse dealers like horses to go to the veterinary college, others did not like them to go there. If Professor Macqueen only knew the flattering terms in which he had heard him spoken of! One noted horse-dealer expressed a very forcible opinion as to what he thought of Professor Macqueen's abilities. He (Mr. Hurndall) replied, "My friend, I have known Professor Macqueen for a number of years, and I have a great respect for him. I feel confident that he is the right man in the right place, and the very fact that you take some objection to him convinces me that he has done his duty to somebody or other, although, it may be, his doing so has cost you a little." The horsekeeper made no rejoinder, but sniggered and retired. He desired to see as an outcome of that discussion some practical results, one of which was an increase in the fee for examinations. That was another matter in which they needed unity of action. Seeing how serious were the responsibilities they incurred, their liability to have to pay £46, or even £146, at any moment, he did think they should be fairly remunerated and enabled to give the necessary time for a full and thorough examination. He thought that some influence should be brought to bear upon the Governors of the Veterinary College at Camden Town, to induce them to raise their fees. It seemed very ridiculous that an institution of that sort, whose acting officers were regarded as great authorities on the subject of soundness, should undertake to examine five horses in addition to other work, for the paltry sum of two guineas in the course of a year.

The CHAIRMAN: I am extremely sorry to have to ask you to bring this interesting discussion to a close, but I have no option. You see how very late it is, and the agenda for our next meeting is already filled up, so that we cannot further adjourn this discussion. I will ask Captain Butler now to reply to any points to which he may desire to address himself.

Captain BUTLER said that he had nothing to add to what they had heard from various speakers, except his thanks to all for the very kindly way in which they had received his paper. He wished to thank Professor Macqueen for calling his attention to a book of the existence of which he was ignorant, and in explanation of such fault, he could only say that the book had not, perhaps, been well advertised, or he might have seen some notice of its publication. Moreover, although it might be an excellent treatise on the law

relating to horses, it found no place in the lawyers' library. It was not one of the books he found on the shelves of the Law Society's library, and he particularly drew attention to the books he found there inasmuch as they were the guides that influenced the lawyers particularly. He also mentioned that there were some other books written by veterinary surgeons, but these did not influence lawyers so much as books written by lawyers themselves. The questions of the certificate gave rise—as he thought it would—to some difference of opinion. His own view was that the certificate was a difficulty which they had built up for themselves, and which they would be only too glad to knock down as soon as possible. Professor Macqueen had given them a living picture of a bullying lawyer with a certificate commencing "I certify," although at the same time the professor remarked that such a certificate meant nothing, and could not be used to the detriment of the veterinary surgeon. Still it must be owned that a learned counsel, with such a certificate in his hand, could often make a singularly ridiculous picture of a professional witness. He could—assisted by the certificate—use arguments which were to the detriment of the witness especially if, as sometimes happened, the witness—though, perhaps, a very excellent veterinary surgeon—might not be the best of witnesses. His own idea was that the certificate might be got rid of with great advantage, especially in its present form, not as Professor Macqueen said in fear of the law, but in order to give them a better chance of expressing their opinions—the opinions at which they might have arrived. He held that the certificate in its present form did not afford them a chance of expressing any opinion. They went and examined a horse perhaps, as Mr. Samson suggested, as the result of the receipt of a telegram from a client, and they were asked to pronounce in one word whether the animal was sound or unsound. He found it sometimes impossible to give a satisfactory opinion in one word and therefore he personally declined to do so. Mr. Edgar touched upon the question of a seller holding a certificate from a veterinary surgeon. Personally he was of opinion that in no case were they justified in giving a seller a certificate. What did the seller want a certificate for? He required it in order that he might flourish it in the face of an intending buyer. Personally he (Captain Butler) saw more of the buyer than the seller and he knew the amount of respect in which such certificates were held by the intending purchaser. The dealer showed the intending purchaser a certificate signed by Mr. So-and-So, M.R.C.V.S. The purchaser looked at the document and exclaimed "Ahem! yes." He does not think much of it.

Mr. HUNTING: If a seller employs you to examine a horse, how can you avoid giving him a certificate?

Captain BUTLER: The veterinary surgeon need only give his personal opinion on the subject. He is free to act for himself. It is possible for a man to decline to do a certain thing whether he gets a fee for it or not.

Mr. HUNTING: But must we altogether decline to examine a horse for a dealer and to give him a certificate when he is buying the horse?

Captain BUTLER: My own opinion on the subject is that we should decline. He went on to say that the form of certificate which he had suggested in place of that which was in general use was what he had termed "a letter of veterinary advice." Such a document offered all the advantages that might be got from a veterinary surgeon's examination and would, he thought, do away with some disadvantages at any rate. It would afford the veterinary surgeon an opportunity of expressing himself in more than one word. In conclusion Captain Butler again thanked them for the kindly way in which they had received his paper.

Mr. EDGAR: I have very great pleasure in proposing a hearty vote of thanks to Captain Butler for the paper he has brought before us.

Mr. HUNTING: I should like to be permitted to second the motion, for I,

myself, was even more pleased with hearing Captain Butler deliver his paper, than in subsequently reading it. To hear Captain Butler deliver his address was really a pleasure—one for which I am grateful to him. I think he has so treated the subject as to make us all think a little more about it.

The motion was carried unanimously, and Captain Butler shortly returned thanks.

The CHAIRMAN having announced that at the next meeting of the Society Professor McFadyean would read a paper on "Glanders," and that the discussion would be opened by Mr. Charles Sheather, the proceedings terminated.

NORTH OF ENGLAND VETERINARY MEDICAL ASSOCIATION.

(*Continued from page* 377.)

MR. CLEMENT STEPHENSON spoke in the highest terms of Mr. Malcolm's paper, which he said was one of the most able he had ever listened to. He proposed that they gave Mr. Malcolm a hearty vote of thanks.

Mr. ELPHICK, having also acknowledged in eulogistic terms Mr. Malcolm's paper, seconded the vote of thanks. He attributed the less frequency of colic to better management and better feeding. He was of opinion that where a proportion of maize was given there were fewer cases than where a horse was fed on nothing but hay, oats, and beans. There was one little suggestion he would like to make and that was with regard to the mode of feeding. His advice if followed would, he believed, obviate a great deal of this gastric disturbance. There was a tendency on the part of a great many people to have in their stable fittings a small manger, from which the horse could consume his food very rapidly. His advice was that they should distribute the food over the stable surface and thus compel the horse to take two or three times the length of time to pick it up. If they did that they would see that their horses would improve very considerably. He had no hesitation in saying that if horses were fed generally in that way they would get a good deal more nutriment from a given quantity of food than they would if allowed those small mangers out of which they could eat greedily. The great object in feeding horses should be to get them to assimilate as much of the good properties of the food as possible.

Mr. H. HUNTER, having spoken in praise of Mr. Malcolm's paper, said he quite agreed with that gentleman as to the causes of tortion of the bowel. They were often asked what was the cause of twisted bowels. The popular idea was that it resulted from the animal rolling about in colic. He believed it was much more largely due to perverted nutrition. With reference to food, he had had some experience both with maize and ordinary food, and was of opinion that they had fewer cases of colic now than they used to have, whether fed upon maize or otherwise. He attributed that not so much, perhaps, to the character of the food as to the supply of water. He never neglected that with his own horses. He endeavoured to give them water whenever he could, even on the roads. He never hesitated to stop, no matter how warm the animal was, and let him have some water. With reference to periodical outbreaks of twisted bowel and rupture, he could not say that he had had any experience. He had only come across casual cases. He perhaps got one or two in a week, and as a rule they did not, except in a few exceptional cases, come a great number together. Some 12 or 18 months ago he had a large number affected with bowel diseases, but those he attributed to a little irregularity in the preparation of the food. The machinery was not in order. Mr. Stephenson, he believed, was present and saw these animals fed. The beans were not broken and the oats were going through the

machine whole. There was no means of taking the dust and dirt out of the food, and he believed that had largely to do with that particular outbreak. With that exception, he did not think he had ever seen a number of cases come together in the way described by Mr. Malcolm. There were many other points in the paper which might be discussed at a further meeting with considerable profit.

Mr. HUNTING described an experiment on feeding 18 horses with food comprising three parts of barley, one of oats, one of maize, and one of beans. They had the same weight as given to some 600 or 700 others fed on the ordinary mixed food, namely, two-thirds of corn and one-third hay. Six of the twelve were in the stable at South Hetton, and six of them were in a stable at Murton. After feeding them in the way described for about a month they had seven cases of colic in one stable in four days, but none in the other. He got a letter from the resident surveyor, calling his attention to this extraordinary thing, and requesting him to stop the barley at once. He refused. He did not stop the barley, except in one stable—not that in which the animals were affected, but in another one adjoining. If he had stopped the barley he would never have believed otherwise than that the barley produced the colic. Months had passed since that took place and there had only been one case of colic, and that case happened in the stable where oats, hay, and beans were used. There had not been one in the stable where barley had been used in the same proportions as before. That satisfied him that barley had nothing to do with the case of colic. What had produced it? He was naturally very anxious to find out. Effects were not produced without cause. Inquiries elicited the fact that the food of the horses affected had been changed from maiden seed and clover hay mixed with corn, to two-year-old old-land hay, and that hay not of a first-class character, having got damp when being attacked. The change was made four or five days before the colic broke out. That showed how important it was that they should not jump to conclusions. They wished to gain the confidence of their employers, and that they could best do by showing that at whatever cost of trouble and time they would get at the bottom of a thing.

Mr. H. HUNTER asked for views upon feeding horses on boiled food. What effect had this upon digestion and upon the frequency of colic? It was an important thing in connection with feeding whether boiled food was beneficial or otherwise.

Mr. NISBETT endorsed what had been said about the diminution of colic. Where they had 10 or 20 cases 20 years ago they had not one now. At the colliery where he had the honour of looking over the horses, colic was a thing almost unheard of now. He had tried feeding on oats, hay and beans, and on oats, beans and maize, and had found the result something similar in all cases. As Mr. Hunting had said colic often occurred after a change of hay. If they had been in the habit of giving sound, sweet clover hay and changed from that to old-land hay they invariably got cases of colic, especially if the latter hay had been subjected to wet weather. He had found more colic arise from that than from any other part of feeding, such as mixture of beans, maize and oats. He was fond of maize. It helped to counteract the binding effects of beans. In conclusion Mr. Nisbett spoke of damping food previous to giving it to the horses. When Professor McGill introduced that system it was thought that all horses would get the colic. But he had never had a case since adopting that plan.

Mr. CHIVAS spoke of the effect of soft feeding in the agricultural district were he practised. When he went into the neighbourhood 16 or 17 years ago there were 20 cases of colic to every one there was now. The farmers then fed their horses on boiled oats, boiled barley, mashes or something of that description. They thought they could not keep the animals right unless

they did that. He advised them to give it up entirely and use dry oats, hay and bran. Since they did that cases of colic had been very rare indeed.

Mr. HUNTING asked for opinions about the results of boiled food for cart horses.

Mr. H. HUNTER quite agreed with Mr. Chivas that where they gave boiled food or mashes they had more colic cases. He never gave a mash except in a case of sickness.

Mr. HUNTER referred to an awful mortality among horses from this cause some years ago. It was about 10 or 12 per cent. The farmers were giving the animals large quantities of boiled barley, linseed, turnips and other things. Professor Gamgee advised them to stop that. They did so with surprising results, and the agriculturists gave the Professor a grand dinner in Edinburgh about the year 1850, in return for the advice he had given them.

Mr. ELPHICK endorsed everything said with regard to boiled food. It was the greatest folly in the world to give it to horses. It was a most unnatural food. It was not natural to give horses pigs' meat. If they wanted to get fat, flabby horses, give them cooked food. What happened? Disease broke out amongst them, and they died like rotten sheep. Give a horse good, sound, hard food, with judicious work, and he would repay his owner for it.

Mr. MALCOLM, in reply, said he was exceedingly indebted to the meeting for the discussion on his paper. He had come with the hope that he would hear the opinions of those who had had experience, and he had not been disappointed. Mr. Hunting had referred to barley. He (Mr. Malcolm) was very much interested in the cases Mr. Hunting had brought before them. He had been doing something similar. For the last four or five months he had had 60 horses receiving barley instead of oats, the proportion of food being exactly the same, and, so far as he could see up to the present, he could not tell the difference between horses fed on oats and horses fed on barley. They had 120 working horses, and 60 of these had been getting oats, and 60 had been getting barley. Now, was there any difference as regarded cases of colic, or anything else? He was glad to hear the opinion that colic, or, rather, rupture and twist, was not so frequent now as it used to be. His early experience had been among agricultural horses in Scotland. These horses were fed solely on oats and hay, with a mash at night, and he could honestly say he scarcely ever saw a case of rupture or twist there. Comparing that with his experience in the Midlands, and having heard his Manchester friends speak about it so frequently, he had naturally come to the conclusion that the disease was much more common now than in his early days. If they turned up Professor Williams's books, they would find that he stated these cases were then exceedingly rare. He had also been exceedingly interested by what Mr. Hunting had said about the order of food in the stomach of a horse. The observations were contrary to those usually taught. Mr. Elphick touched an important point when he spoke of the length of time a horse took to eat its food. He believed, himself, that many cases of colic were produced by the horse eating his food too rapidly. That led him to believe that mixed foods were more liable to cause the disease. The horse was able to eat it more rapidly and in a way to cause engorgement of the stomach more readily than when he took a longer time over a meal. He was in favour of maize feeding. He believed far more cases of colic were brought about by the way horses were fed than by the grains given them, providing of course that the grains were sound. He knew of few grains which, if judiciously given and were sound, that would produce colic naturally in themselves. Many cases of colic were brought about through defective food. From the cases he had cited they would see that in his experience twist or rupture had almost exclusively occurred through watering, either through the allowance being too limited or irregularly given.

In conclusion Mr. Malcolm deprecated the giving of a large quantity of food at one time, and expressed himself favourable to Professor McGill's action with regard to damping food. His experience as to boiled food was entirely opposed to those who had spoken. His success with it might be due to the fact that they never gave too much of it at once.

Mr. ELPHICK called attention to a paragraph which had appeared in *The Newcastle Daily Journal* with regard to an alleged serious outbreak of disease among horses in that city. The paragraph had alarmed the people not ouly in Newcastle, but also outside of it. It had materially affected him. When anybody brought a horse to Newcastle they were told not to put it into a public stable in case they might take the disease home. He was not aware of many large firms in Newcastle whose horses were affected, or where they had any of this serious outbreak of disease. He would like to ask those present if they knew of any outbreak to the extent alleged by the paragraph in question. If such a thing was not a fact the sooner publicity was given to a denial the better.

Mr. NISBET said so far as he knew the country had never been so clear of disease since he first knew it. He did not suppose there was a case of infectious disease in the whole neighbourhood.

Mr. HUNTING testified to his colliery being clear of infectious disease, and also to the fact of the agricultural districts of north, east, and south-east Durham being free. In Northumberland he understood there were several outbreaks of influenza, but he did not think it was very alarming. It was of a mild form. But throughout the whole of the North of England he never knew horses more free from infectious disease.

Mr. ELPHICK said they had had a good few cases in Newcastle and district, but practically speaking the disease had ceased entirely.

The PRESIDENT said about a fortnight ago a horseowner in Sunderland had occasion to send some goods into Newcastle. Two days after returning the horses, which had been put into a stable, manifested symptoms of pink eye of a very mild type. Apart from that one stable, he had not in his whole practice come across a case of infectious disease.

Mr. H. HUNTER said so far as his experience went influenza was not general in the city. The particular outbreak alluded to in the paragraph in question was confined to one large stud. The cases were being investigated. They had no tendency to spread, and he did not think the public need have any fear whatever as regarded the disease in Newcastle generally. Whatever might be the nature of this disease there was no question that it was virulent and fatal, and he hoped the whole thing would be got at, that the cause would be found, and that steps would be taken to stop its ravages.

The vote of thanks to Mr. Malcolm having been accorded, the meeting terminated.

The Dinner.

Subsequently to the meeting, the annual dinner of the Association was held at the same place. The President occupied the chair, and there were present: Messrs. J. E. Peele, V.P., J. H. Rider, V.P., G. Elphick, H. Hunter, A. Hunter, J. R. Crone, D. McGregor, W. Grieve, Veterinary-Major Durrant, A. A. Stevens, A. Chivas, T. R. Jarvie, C. Hunting, A. Dalgleish, W. Hunter, J. B. Nisbet, and F. T. Finney, Secretary. Visitors: J. Malcolm, Birmingham; Councillors A. P. Anderson, R. L. Dunford, and J. A. Baty, Newcastle; Dr. H. E. Armstrong, Newcastle; H. H. Roberts, Mr. G. Lee, and F. C. Robson.

At the conclusion of the repast,

The PRESIDENT proposed "The Queen," and also "The Prince and Princess of Wales and the rest of the Royal Family," both of which toasts were loyally responded to.

Mr. W. HUNTER submitted "The Army, Navy, and Auxiliary Forces," coupled with the names of Veterinary-Major Durrant, Veterinary-Captain Elphick, and Veterinary-Lieutenant A. Hunter, each of whom responded.

Mr. J. NISBET gave "The Corporation of Newcastle-upon-Tyne." He regretted that the Mayor and Sheriff were not present, but was glad to see at the table three gentlemen who also belonged to the Corporation. They knew there was an old Scotch saying, "If you cla ma' back, I'll cla yours." He would like to claw the Corporation's back if they would only be so good as to claw the Association's back in return. He thought they did that very well. They had a large stud of horses themselves, and they saw the utility of having a veterinary surgeon as head of affairs in connection with their horse department. Another thing, one of the gentlemen of the Corporation present was very fond of the horse, and it augured well when he came to a social gathering such as their annual meeting there. It indicated that he appreciated the services of the profession. He (Mr. Nisbet) might say the same thing of another member of the Corporation present, who, he believed, was very fond of the cow. When they had a little social gathering, they felt it a great honour that the Corporation of the district, wherever it might be, should come and patronise them. They were certainly very much obliged to those gentlemen for their presence that night. It was not the first time they had been present, and he hoped it would not be the last. He would conclude by asking the company to drink to the health of the corporation of Newcastle, coupled with the names of Messrs. Anderson, Baty, and Dunford.

The toast was received with enthusiasm.

Mr. ANDERSON, in responding, said he was delighted not only to be with them that night, but also to know, by the way they had received them as members of the Corporation, that they at least knew something of the latter body whether they knew anything about them as members or not. Mr. Nisbet had reminded the company that some of the members of the Corporation present knew something about animals. Having expressed the pleasure it afforded him to meet Mr. C. Hunting, and Mr. H. Hunter in particular, Mr. Anderson said he was always delighted to support a society like this. It was an honourable society, and did a great deal of excellent, useful work. He was agreeably surprised to see such young members of the society. It was a good omen. It was important that they who were older should, by reading lectures and papers, endeavour to bring those young members up to the high standard occupied by the profession. So far as the corporation of Newcastle were concerned, he could assure them that that body had done the very best possible for the ratepayers. He instanced their efforts in connection with the Byker Bridge and the tramways, and concluded by saying that if the ratepayers could recognise their efforts they would be satisfied. He congratulated the president upon his election, and wished him much happiness in his term of office. He also wished the Association much prosperity.

Mr. BATY referring to the remark made by Mr. Nisbet that some of the councillors present took a certain interest in horses and that some took an interest in cattle. said he would take the latter as applying to himself. As most of them were aware he and his friend Mr. Anderson had been to London with a deputation for the purpose of trying to get back the cattle trade. He did not mean to say that they went for the benefit of the veterinary surgeon—rather the reverse. But they thought, having such a large sum of money invested in the cattle docks at Newcastle, that the time had arrived when they should make an effort at all events, to get the trade back. However, notwithstanding the arguments, persuasion and eloquence of their esteemed mayor and the champion of the Central Hall, and a few less important members of the deputation, they failed. Mr. Gardner held, and he (Mr. Baty) believed correctly so, that although there had not been any disease in

Denmark for twelve months it had been at Schleswig-Holstein a few months before. That, Mr. Gardner thought, was a sufficient reason to prevent the cattle coming to England. But although cattle could not come in from Schleswig-Holstein to Denmark, unfortunately the Germans could. He quite agreed with Mr. Gardner that if there was the slightest danger of bringing the disease into this country they were better without the cattle. He was sure every veterinary surgeon would agree with him so far as that was concerned. Mr. Baty having spoken of the changes which had taken place in the veterinary profession since the old blacksmith used to bleed the horses and so on, he said the veterinary was now a scientist. He acknowledged the services rendered by Mr. Clement Stephenson, to whose exertions and skill he attributed in a great measure the absence of disease in the city. He thanked the company for the manner in which they had received the toast. Mr. Dumford as chairman of the Horse Food Committee would speak of the horses.

Mr. DUNFORD spoke jocularly of the disadvantage he laboured under owing to being the last speaker. Another great disadvantage he was placed under was that he had only recently been appointed chairman of the Horse Food Committee. The Corporation had a splendid stud and it was well looked after. It would give him great pleasure, if invited next year to this gathering, to give them a lengthy discourse as to mode of treatment with regard to the Corporation horses. With Mr. Anderson he believed the Corporation was animated by a desire to do the best they could in the interests of the public at large.

Dr. H. E. ARMSTRONG proposed "The Royal College of Veterinary Surgeons." He did not know any more elevating work than that referred to by Councillor Anderson, namely, the educating of the young members of one's own profession. Their profession like his own was becoming every day harder to follow. It was a question of the survival of the fittest, as in most other matters of this kind. No man would care to put his hand to the plough either in connection with the medical or veterinary profession unless he was in thorough earnest. His chance of making a fortune in either case was probably not great. But he had before him in each instance a very lofty ideal to work for—the alleviation of the suffering of man on the one hand and the alleviation of the suffering of animals on the other. They all loved animals and to relieve the pain, to prolong the life of these dumb creatures, to strengthen them and make them fit to do their work was a grand calling. Their college in that respect did its duty admirably well. The Institution had, he understood, lately completed its jubilee. It was thriving in every way, and was sending forth into the world men—highly educated men—able to do good work and raise the tone of their profession. Its curriculum had been increased to four years. He had had that fact in mind when he said that a man having put his hand to the plough would not think of turning back, because he had sacrificed so much time to fit himself for the highly educated profession. The veterinary profession like the medical was exposed to a great deal of danger in respect to infection. He coupled with the toast the names of Messrs. J. Nisbet, G. Elphick, and H. Hunter, members of the Council of the College.

The toast was heartily honoured.

Mr. NISBET said, as one of the representatives of the Royal College of Veterinary Surgeons, it gave him very great pleasure to thank the company for the cordial manner in which they had received the toast. Like all corporate bodies the Royal College of Veterinary Surgeons often got more kicks than halfpence. They certainly had had a number of kicks from the profession during the last two or three years, which had been a time of vast importance to the profession. He took credit for the North of England

Veterinary Medical Association as the pioneers of many of the reforms which had taken place in the profession. At one time there was a sort of round-table conference. They elected themselves and did what they liked. The North of England Veterinary Medical Association saw the folly of such a thing, and were convinced that if the profession had to be in keeping with the advancement of other professions some reform must necessarily take place. The Ninth Clause of the old Charter was a great stumbling block, and so were the dual appointments. This Association brought these matters forward. It was a matter of sending sufficient voting power up to London. He had the honour of being one of their representatives. That was four years ago, and the changes which they then advocated had now become law, viz., the rescinding of the Ninth Clause, abolition of dual appointments, and the election of president from the members of the Council alone. As they were aware, they had also extended the curriculum from three to four years, and they had now the medical matriculation examination. All these measures had his warm support. He thought they could not educate a veterinary surgeon too highly. They had a very important position to fill, and, like the medical profession, they must be educated men. It was not what it used to be 20 or 30 years ago. He had no doubt that the gentlemen of the profession then were imbued with a real love for horses and cattle and other domesticated animals. They loved them and wished to do good to, and to save the lives of, those poor animals. They also wished to lessen their suffering. Now they had a different class of men coming before them. They had young lads of 17 and 18 years of age coming direct from school to college, and necessarily these men were highly educated. But there was another step in the veterinary education which must come to the fore. He was sorry to disagree with his friend the President who, in his introductory address, referred to the subject. He meant the necessity there was for young men serving a pupilage. He maintained that the class of men who came forward into the veterinary profession were bound to have some practical teaching. He had attended examinations at Edinburgh as a delegate from the Council, and he saw the necessity—the absolute necessity for the young men who went up for examination having more practical knowledge. If the compulsory pupilage spoken of could be the means whereby the student could attain that practical knowledge then by all means let them have compulsory pupilage. If the student could obtain that knowledge in any other way, as, for instance, by serving so long a time under a veterinary surgeon, that would suffice. But it was no use talking to a lad. They must see him do the work, and every student must be able to do it before he got his diploma. They wanted to do what was right, and they wanted to advance with the times.

Mr. ELPHICK also begged to thank the company for the manner in which they had received the toast. He would take that opportunity—being the first he had had of speaking in public since his election—of thanking sincerely the members of the profession for having returned him as a member of the Council. It was nearly two years since his appointment, and he could say that the duties imposed upon him required a great deal of time and attention, and also a large amount of money. But none of these he begrudged if his services were of any use in elevating the profession. Since he had the honour of being elected, there had been a great many alterations, most particularly in regard to the education of their students. He could assure them and the public that it was the great desire of the College to see that no man was passed as qualified for a veterinary surgeon without a fair amount of knowledge, practical as well as theoretical. He could also say this, that he thought the students would yet be compelled to show still more practical knowledge before they were allowed to take the degree of M.R.C.V.S. He had no doubt in his mind that a good education was the first essential. Unless

a man had that, he would not be able to grasp the subjects which he had to meet. The Council had, therefore, acted very wisely in increasing the student's matriculation to be equal to that of the medical profession. He also thought they had acted very wisely in extending the curriculum from three to four years. It would give the student a much better chance of obtaining knowledge, and also of doing more practical work. From observations made not only on the Council of the College, but also at the large teaching schools, he was convinced that everyone was striving his utmost to see that the students got practical knowledge. Speaking of practical knowledge, he must disagree entirely with Mr. Nisbet about compulsory pupilage. He thought if anything of that kind were made compulsory, it would not be done well. Compulsory pupilage would not guarantee that a man was a practical man, or that he knew anything at all about his subject. It was not in the Royal College that a man got his practical knowledge, but the College would fail in its duty if they passed a man who had not a good practical knowledge as well as a good theoretical knowledge. The College was there to protect the public, and to see that men were not launched upon it as frauds. He could assure them that it would be the greatest endeavour of the Council of the College to see that none but really good sound men were passed into the profession. As Dr. Armstrong had said, this was not a profession out of which great fortunes could be made. It was not a profession that they could speculate in. It was an honourable profession, and a profession he would like to see the public look more up to. The public generally seemed to look down upon a veterinary surgeon as if he were a groom, or a coachman, or something of that kind. They in Newcastle were trying to raise their status, and the Royal College was trying to do so. A great deal of their proceedings were not made public. They were doing considerable work in trying to put down unprofessional conduct. Only at a recent Council meeting they had a long list before the Registration Committee, in which several members of the profession were cautioned as to their proceedings. In fact, one was struck off the rolls of the College, and he might say it also behoved the profession to assist the Council by reporting any glaring cases. By so doing he had not the slightest hesitation in saying that they would raise themselves in the estimation of the public. When once they did that, and got the confidence of the public, they would not only have done good to themselves, but also to the community at large. He did not think owners of horses and cattle had sufficient confidence in them. They seemed to look upon the veterinary surgeon, in a great many respects, just as a nice convenience. They tried to doctor their own animals until they thought the latter were going to die, and then they called in the veterinary. If the animal died the veterinary got the credit of killing it. It would be a benefit to the horse-owner and farmer if they would employ a veterinary surgeon oftener than they did. The veterinary surgeons did not wish to make a bill out of the owners of animals; they only wished to be paid for what they did. He thought the least the public could do was to give them the good as well as the bad. Many cases had come under his notice in which he considered the veterinarians had been most untairly treated. It would be better if those who employed the veterinarians would realise that their great aim was not only to cure disease, but also prevent it. With regard to tuberculosis, he really did think it was time the local authorities in many of their districts took this question up. These local authorities seemed to take a great deal of interest in preventing the loss of life at music halls and theatres by seeing that proper exits were provided, and in many other ways. Yet they never thought of the hundreds of lives lost through a disease which was really preventible to a very great extent. He felt confident that if the Newcastle Corporation took up this question of tuberculosis, and brought pressure to bear in the proper quarters, some good would result.

Mr. H. HUNTER having thanked the company for their hearty response to the toast, said not only had their society encouraged the reforms made in connection with this profession lately but when they had undertaken to elect a member they had never failed. He believed the examiners at the College were doing their duty very well indeed. They were doing their best to give justice to the student and also to the profession. He had had the pleasure of being present at the examinations on two occasions—once in Glasgow and once in Edinburgh—and was confirmed by what he then saw in his belief that full justice was done. As a rule if a student failed it was his own fault. A good student was very soon found out by the examiners, of whom Mr. Malcolm was one and one of the best. Some students came up absolutely ignorant of the subjects they were to be examined upon. Speaking of the extended curriculum, Mr. Hunter said he hoped it was a step in the right direction. He thought the Council had been a little too hard upon the students in making them pass the whole session before allowing them to sit a second time for an examination. A student might be moderately good and might have barely failed to pass. He might even have been so unfortunate as to have been rejected more than once or twice. It was a matter of serious consequence to the parent or guardian to have to send up a lad repeatedly. He believed it did not apply to the medical profession. He did not think in that profession if a student failed he was asked to pass a full session before he could go up again for examination. His opinion was that whilst they should emulate that profession they ought not to attempt to get ahead of it in the rules applying to students. He quite agreed that a student ought to be well qualified. He did not agree with Mr. Nisbet about the compulsory pupilage. The examiners would see that the students had the knowledge and they might get it where they liked.

Mr. HUNTING proposed "The Sister Profession." Members of the medical profession, he said, had been their best friends in the past, and he believed that at present the members of the medical profession were their sincere well-wishers. All veterinary surgeons had obtained very great benefits from the sister profession. Having described the growth of medical knowledge in England, Mr. Hunting said they thanked the medical profession for the support they had given, and for the freedom with which they imparted to the veterinary surgeons any information they might obtain in the pursuit of knowledge. He had pleasure in coupling with the toast the name of Dr. H. E. Armstrong.

Dr. ARMSTRONG, in replying to the toast which was well received, spoke of the warm feeling which existed between the two professions and the kindly way they had worked together, especially in connection with comparative pathology. He referred to a paper he had read on the subject before the National Society and to the discussion which ensued. At that time he expressed a hope that the time was not far distant when medicine would be pursued in the University of Durham. At the present time, Professor George Murray (this was a development that had taken place since he, Dr. Armstrong, read his paper) was teaching comparative pathology. He was sure Professor Murray would be glad to receive at his lectures any student of the veterinary profession to study the subject side by side with members of his own (Dr. Armstrong's) profession. Reverting to the way in which the two professions had worked together, Dr. Armstrong spoke of his having once to go abroad for information, adding that he got it from the veterinary profession. It concerned his public duty in connection with the inspection of butcher meat, and he had to go to France for a book, not being able to lay his hands upon it in English. Now they had good works in the English language. Comparative pathology had been studied in France and Italy before it was studied in England. Now things were altered. He hoped the

time was not far distant when the two professions would work still closer together. They might depend upon it that all the progress the medical profession made with the subject of bacteriology would be made from animals through the veterinary surgeon's assistance. The medical men looked to them very anxiously for help.

Mr. JOHN MALCOLM proposed "The North of England Veterinary Medical Association." He said it was 16 or 17 years since he joined this Association. He always looked back with great pleasure to the many happy times he had had in connection with it. He was present at their first festive gatherings under the presidency of their old friend, Mr. Dudgeon. He remembered the eloquent and able speech that gentleman delivered to them that evening—how he advised them individually to do their best for the profession and how he urged them to unite for furthering those measures of progress and reform, of which, as had been truly said that night, this Association was the pioneer. He sometimes thought that this Association next to the Council at that time did more than any other society throughout the whole country. At present the Association was in a unique position in having three members of Council. No other provincial association had as many, though many of these bodies were numerically much stronger. They had 100 members in their Midland Society, but only one member of Council. He did not know how many members this Association had, but was pleased to see that they had three members of Council. He was a little bit surprised at what he would term the apathy of this Association. Hitherto it had always been in the van of progress, but now they seemed to be resting upon their oars and doing nothing. The Central Association had passed a resolution and formed a deputation to petition Government. He found the Midland Association doing the same and the same remark applied to the Yorkshire Association. He heard not a word of it here. He referred to the appointment of Major Tennant (who though a very estimable man was not a veterinary surgeon) to replace Professor Brown as head of the Veterinary Department of the Board of Agriculture. It was time that the veterinary profession were up and doing, and approaching the Board of Agriculture about an appointment like that. Having expressed the pleasure it afforded him to be present, Mr. Malcolm said reference had been made to the great changes, educational, scientific and social, which had taken place in the veterinary profession. He believed that what was true of the past would be true for a good few years to come. When they remembered some of the eminent men who had been connected with the Association the young members would realise that they had something to emulate. He coupled with the toast the name of the president.

The toast was enthusiastically received, and the President, upon rising to respond, was greeted with the singing of "He's a jolly good fellow."

The PRESIDENT, having thanked the company for the way in which they had drunk the toast, said he could assure them that he had not sought to occupy that chair that evening. He was not present at the last meeting when the matter was settled, and when he wished to withdraw, declaring that he did not wish to stand, his friend Mr. Nisbet said their rules were like the laws of the Medes and Persians: they were unalterable. So, seeing that they had such an able secretary in the person of Mr. Finney, and seeing that he had so many friends in the Association upon whose sympathy and support he could rely, he undertook to follow in the footsteps, however unworthily, of the very eminent gentlemen who had occupied that chair in past years. The North of England Veterinary Medical Association had always been in the van of progress. They had heard a great deal about the Newcastle Programme in relation to Imperial politics. They also had a programme, and all the measures in connection with it had been placed on the statute book. Mr. Malcolm had said he was surprised that they were resting on their oars

Perhaps it had been his (the President's) fault in not bringing the matter of the appointment up. He believed that they as veterinary surgeons were conscious of the very great slight the Board of Agriculture had cast upon them. They had many eminent men who were able to take up the work and follow in the footsteps of Professor Brown, who had so ably carried on the work in connection with this important department. He did not think he could say very much about the North of England Veterinary Medical Association other than they had already heard. As they knew, they had three representatives on the Royal College of Veterinary Surgeons, and they had heard that there was a difference of opinion in the Council, even among their own representatives, on the educational question. He would repeat what he had said in his address at the meeting—that he considered it would be unfair for the Council of the College to place barriers in the way of a man who might be a great ornament to the profession in years to come, but who might not be able to find the time and money to undergo training with a practical veterinary surgeon. He might be in a position to gain that practical knowledge from intuition, as they might say, and from a natural love of animals, and yet fail to pass the preliminary examination and pass the examination of the Royal College of Veterinary Surgeons. He thought it was the fault of the examiners if they allowed a man to pass without being practical and scientific. They ought not, however, to impose restrictions, and say "You must get your knowledge here, or you must get it there." As long as the student possessed the knowledge, the examiners had no right to say how he had to get it.

Mr. W. HUNTER proposed "Our Guests," coupled with the names of Mr. Baty, Mr. Dunford, and others.

The toast was heartily received.

Mr. BATY, in replying, alluded to Mr. Elphick's remark with reference to the Corporation and tuberculosis. He assured them the Corporation paid every attention possible to the disease. They had in Newcastle a unique power. They could go into the market and turn any cattle out which their veterinary suspected of being affected with tuberculosis. He believed there was not another market in the kingdom could go so far. He contended that the butchers of the city had set an example to the kingdom. They had formed an insurance association, whereby they had 1s. a head for heifers and bullocks, and 1s. 6d. a head for cows. If it were found with tuberculosis they got 2s. 3d. back, and that was the greatest protection a community could have that the carcase would be destroyed. It was the proper way. Having alluded to Professor Brown's successor, and want of a veterinary in Mr. Gardner's department, Mr. Baty concluded by saying he sincerely hoped the veterinary profession would make an effort to retain some power in their hands with regard to animal disease.

Dr. ARMSTRONG remarked that the Corporation of Newcastle had one thing in respect of tuberculosis which no other Corporation had. They had power to compel the farmers and dairymen to notify the disease.

Mr. ELPHICK said if the Corporation had the power let them do their duty. He had no hesitation in saying that 75 per cent. of the cows that died in Newcastle died from tuberculosis. They came out of the byres within the borough. It was not the farmer but the cowkeeper he referred to. The cows were milked up to the 11th hour. Wasn't that a means of disseminating tuberculosis?

The gathering shortly afterwards dispersed. Songs were sung by Mr. Hoffman, and Councillor Dunford gave an exhibition of "fireworks."

YORKSHIRE VETERINARY MEDICAL ASSOCIATION.

THE spring quarterly meeting of the Association took place at the Queen's Hotel, Leeds, on Friday, April 26th, Mr. James Cooke, of Scarborough, (President), in the chair.

Letters of apology for non-attendance were read by the Hon. Secretary (Mr. Frank Somers), from Professors Williams, Penberthy, and Pritchard.

The HON. SECRETARY also announced that letters had been received from the following veterinary medical societies agreeing with the resolutions passed at a special meeting of the Association in regard to the Board of Agriculture and the veterinary profession:—Eastern Counties, Lancashire, Royal Counties, Irish, Lincolnshire, National, South Durham, North Yorkshire, and Royal Veterinary College, also from the Royal College of Veterinary Surgeons.

Nominations and Elections.

Mr. G. E. BOWMAN, Leeds, nominated Mr. G. Bowes, Leeds, as a member of the Association, and the CHAIRMAN nominated Mr. Charles Lang, Bridlington. The following gentlemen were now elected members:—Mr. C. S. Smith, Barnsley, proposed by Mr. BOWMAN and seconded by Mr. A. W. MASON; Mr. J. W. LAZENBY, proposed by Mr. SCRIVEN, and seconded by Mr. CLARKSON; and Mr. Holden, Scarborough, proposed and seconded by Mr. SCRIVEN and the CHAIRMAN.

Votes of Condolence.

The CHAIRMAN said he regretted that since their last quarterly meeting they had lost by death a member of their Association in the person of Mr. Anderton, of Skipton, and he moved a vote of condolence with the family of the deceased gentleman.

Mr. A. W. MASON seconded, and pointed out that Mr. Anderton's diploma dated from 1861, though for many years prior to that time he was in the profession. Mr. Anderton had been a member of Council, took a great deal of interest in the Yorkshire Association, and had its welfare thoroughly at heart. The resolution was carried unanimously.

The CHAIRMAN further remarked that the veterinary profession had recently lost by death a very prominent member. He alluded to the late Mr. Thomas Greaves, of Manchester, who always took a great interest in everything relating to veterinary matters, and whose death would no doubt prove a great loss to the profession. He was a gentleman who did a great deal for the profession, and his genial manners and sympathetic nature won the esteem of everybody who came into contact with him. It was his pleasure and privilege to have been a pupil of Mr. Greaves some years ago, and he knew him to be one of the best sort possible, not only as a veterinary surgeon but also as a man.

Mr. MASON endorsed the Chairman's observations, and added that he went over to Manchester to pay a last tribute of respect to the memory of the deceased gentleman. The funeral was attended by nearly the whole of the members of the veterinary profession in Manchester. He noticed from the Register that Mr. Greaves' diploma went back as far as 1841. Mr. Greaves had been president of their College, and for many years a member of the Council, attending the meetings regularly up to the time of his failing health. He was always ready to do a good and kindly action for any member of the profession.

Mr. SCRIVEN also bore testimony to the worth of the deceased gentleman, who, he said, was not only a gentleman, but a brilliant practitioner.

The resolution was agreed to with unanimity.

The Dating of Horses' Birth Certificates.

Mr. PICKERING then brought before the meeting the question of horses' birth

certificates. He said he certified thoroughbreds from January 1st, and half-breds from May 1st. Recently he was asked to examine a four-year-old chestnut, and, following the general rule observed in the profession, he gave a certificate that the animal was rising four, though, as a matter of fact, he knew it was over four. He dated the certificate from May 1st; the horse was the subject of negotiation, and complaint was made of the description given on the certificate; the dealer in the transaction saying that he had bought the animal as a four-year-old, and that all horses' ages now dated from January 1st. Ultimately, however, the horse was accepted by the buyer, and a veterinary surgeon at Aldershot said that his (Mr. Pickering's) certificate was given in the right way. He now wished to know if the date of ages had been altered or not.

The CHAIRMAN: Not to my knowledge.

Mr. BOWMAN said he examined a good many horses, and if he considered a horse a four-year-old, he described it so. For show purposes he believed the age dated from January 1st, as in the case of thoroughbreds.

Mr. MASON thought the subject needed no discussion, for thoroughbreds dated from January 1st, and half-breds from May 1st.

Mr. BOWMAN did not think that Mr. Pickering had done wrong.

The subject then dropped, with the understanding that, professionally, there had been no alteration in the dates.

Exhibition of Specimens.

The members spent some time in examining and discussing a specimen of an enlargement underneath the lumbar vertebra of a fourteen-year-old cart-horse, submitted by Mr. Greenhalgh (Leeds). The case was a very interesting one, but no definite conclusion was arrived at as to the cause of the enlargement. The discussion was adjourned till the next meeting, and in the meantime Mr. GREENHALGH said he would obtain the permission of the Yorkshire College authorities, to whom he has presented the specimen, to make a section of the vertebra.

Mr. S. WHARAM showed fractures of the axis in a cow, and of the humerus in a mare, and was accorded a warm vote of thanks for the exhibits.

A Personal Explanation.

The CHAIRMAN wished to correct a passage in his speech about the annual meeting of the Association, reported in the veterinary journals. It would, he observed, be remembered that on that occasion he spoke of the letters which had appeared in the lay press respecting the recent restrictions imposed upon students, the writers of those communications stating that the restrictions would be to the detriment of the colleges and the public in future, and that veterinary surgeons would not be equal to the demand. According to the report of the speech, he was supposed to have agreed with that statement. What he said was quite the reverse. He stated that the writers of those letters had too much sympathy with the public, and that the sympathy expressed ought to be with the veterinary surgeons, and that if the present system of giving gratuitous advice and quackery were continued, the services of veterinary surgeons would only be required in exceptional cases in the the future, as the public would be sharp enough to treat the minor ailments of animals themselves.

The SECRETARY concurred that the published report of Mr. Cooke's speech was different from what he uttered.

Mr. S. WHARAM (Leeds) then read a paper on—

"LIGHTNING AND ITS EFFECTS."

Mr. President and Gentlemen,—The subject I am bringing to your notice to-day is one of more importance to veterinary surgeons than is generally

supposed, and one that I believe has not received the attention it deserves a our hands.

I have not been able to find in any one of our text books mention of the subject. Fröhner and Freidberger in their Pathology and Therapeutics Special to the Domesticated Animals, give a short account of the effects of lightning, and Mr. G. A. Banham read a paper on January 24th, 1881, before the Norfolk and Eastern Counties V.M.A. on the same subject, but what I consider the most important portion of a paper of this class, namely, the opinions and experiences of the members of a society like this, were unfortunately not published with Mr. Banham's paper, and for that reason and the time that has elapsed since any of our societies have discussed the subject, I feel justified in introducing it to your notice.

The name electricity is derived from a Greek word meaning amber, and was discovered and named by Dr. Gilbert, of Colchester. In the year 1600 he published the Tractatus de Magnete, where he gives a list of substances which he found to possess the same property as amber, such as sulphur, sealing wax, and glass.

It is not my intention to give you an account of what has taken place from that date to this; we all of us know the very important and varied uses to which electricity is now applied, and yet our knowledge and our application of it is considered to be merely in its infancy. However, I must refer you to the abundant literature on this subject, and will commence at once to consider the effects of lightning on living organisms.

Unfortunately in this country little can be drawn from statistics, but in France in the period from 1835 to 1863, 2,238 persons were killed by lightning, while between 1854 to 1864 inclusive 967 persons were killed. In the year 1864 alone there were 87 killed, 61 males and 26 females.

In Prussia, where registration is compulsory, the deaths caused by lightning in 1880 were 819 persons. (*Brit. Assoc. Reg. Aug.*)

Children appear to escape this mode of death more than adults (*Chemical News*, 1865, July 7th and December 8th) which is no doubt due to the difference in height.

I think it is only reasonable to suppose that a larger number of animals than anyone would imagine are killed or injured every year by lightning, for at the seasons when thunderstorms are most prevalent, a very large number of animals are out in the fields and therefore more liable to be struck. When a thunderstorm occurs the majority of people take shelter, but it is impossible to place animals under such favourable conditions, and comparing the number of them exposed in agricultural districts with the number of persons, it is evident that the proportion of animals struck must be considerable.

Cause of Death.—Electricity appears to act fatally by producing a violent shock to the brain and nervous system. In general there is no sense of pain, and the animal falls at once into a state of unconsciousness.

Injuries, etc.—Wounds and burns are sometimes met with; the wounds in human beings have commonly been lacerated punctures. In the case of a person that was struck but not killed, a deep wound was produced in one thigh almost laying bare the femoral artery. (Taylor's "Jurisprudence.")

I have examined in several cases the wood of trees which have been struck by lightning, and it has presented the appearance of rending by mechanical force, but I do not remember seeing any mark of burning.

Burns are occasionally met with, but in the majority of cases there is singeing of the hair or wool; in some instances a black mark, the result of burning the hair.

Blindness has frequently been caused by lightning. In a case of blindness in a horse attributed to lightning, the loss of vision in one eye was complete;

the eye presented a slight opacity of the cornea; the head and neck were also drawn to one side. In another instance, a man took shelter under a tree and he felt as though a flash had struck him in the face; he did not fall, but became almost blind, and loss of sight supervened.

Many instances are on record where persons have had their eyesight improved. According to Zootynk, lightning fell on the church of St. Mark, at Roveredo, on the 13th August, 1783. It burnt the dress of the priest, aged eighty-four, who was saying mass, but he was enabled to read without his spectacles after it.

An instance of the cure of blindness happened to Mr. Gordley, an actor at the Surrey Theatre, who had been deprived of the use of his right eye, but recovered it again after a flash of lightning, which fell near where he was standing. (Banham, *Veterinary Journal*, Vol. XII., p. 299.)

Paralysis is the condition most commonly met with. Animals are sometimes found in a state of insensibility, no doubt the result of concussion of the brain; if they recover consciousness and are able to rise, they suffer from paralysis and other symptoms of nervous disorder. I have seen several cases of paraplegia in horses, supposed to have been the result of a stroke of lightning, and in each case the animal has either recovered in a few days, or gradually become worse, even under the best conditions and treatment.

Cases are recorded of paralysis being cured by a flash of lightning, and I have heard of one case where a man affected with rheumatism was cured after receiving a slight shock.

Abortion frequently takes place in animals after a storm, probably from fright. This seems to be more common in cows than in mares. Entire herds of pregnant cows have been known to abort, whilst the mares remained unaffected. (*Banham, Vety. Jnl.*, Vol. 12, p. 299.)

Fractures of the bones have not been commonly observed, but several instances have occurred.

Tetanus resulted in two days from a severe shock received by a boy. (*Med. Times & Gazette*, 1855, p. 553.)

Animals involved in the same flash do not all suffer equally. I have heard of many instances where animals together have been struck, some being killed or injured while others near were unhurt.

It has also been observed in cases of animals in a line, that the outside ones generally suffer most seriously. I heard of a case where a stable containing several horses in a row was struck, the horse at one end was killed, and the one at the other end was thrown down and lost consciousness, but recovered in a short time and appeared all right, the remainder apparently being in no way affected.

Post-mortem appearances.—The suddenness of death sometimes is such that there may be no appearances and no physical changes in the carcase, to indicate the mode of death.

Generally speaking there are externally singeing or blackening of hair, marks of contusion and laceration about the spot where the electric current has entered or passed out. It has been observed in some instances to mark out injuries, from scorchings of hair to deep burns, in the shape of branches of trees. This is perhaps the result of the electric fluid following the course of the blood-vessels causing extravasations. Sometimes in men a severe wound has existed, on other occasions there has been no wound but an extensive ecchymosis. (*Taylor's Jurisprudence.*) Venous system generally engorged, and blood dark with a tendency to rapid decomposition. Ecchymoses are both internal and external, in some instances marking the entrances and course of the electric current.

It was formerly supposed that the blood was never found coagulated after death by lightning and that the carcase did not become rigid. Experience

has shown, however, that these statements are not in accordance with observed facts.

In many cases in men metallic substances have presented traces of fusion, and articles of steel have been observed to acquire a strong magnetic polarity. West met with the case of a boy, aged 18, instantly struck dead by lightning where a knife in the pocket had a strong magnetic polarity; the deceased wore at the time of the accident a pair of strong leather boots, these were torn to shreds probably owing to the presence of iron nails in the soles.

In horses that are shod and in cases where animals have had metallic substances about them, results similar to the above in many instances would occur, but I have not heard of such being observed.

Bodies have been known to retain the position they were in before death. The Rev. Mr. Butler relates a case in which a man was struck by lightning whilst in the act of feeding a dog with one hand, and caressing it with the other. Both the man and the dog were petrified, as it were, in this position. The hand of the man was still holding the piece of bread.

In cases where, after a very careful examination, no lesions are found to account for death, and where death by lightning is suspected, inquiries should be made as to whether a thunderstorm took place about the time the accident occurred. The ground and surrounding objects should be examined, and, in the majority of instances, the practitioner will be able to satisfy himself as to the cause of death.

Legal Relations.—Although I am not aware of any litigation with reference to animals, cases have occurred where insurance companies have disputed claims made on account of death by lightning. I have heard of disputes arising out of the fact that horses were totally disabled by a stroke of lightning, which, in my opinion, is equivalent to death, the insurance company refusing to admit the claim until death had occurred.

Preventive Measures.—These are practised with the greatest success all over the world, in the shape of lightning conductors.

A "lightning conductor" protects a space nearly equal to its own height from its base outwards, and, therefore, a considerable area is protected. In a large breeding establishment near Leeds, the following system was adopted in the park:—

Each large tree had a conductor some distance above its highest point, which was carried into a tank of water at the base, the tree being railed round; and during 23 years that this system was in vogue, a large and valuable herd was out in the park; although in an exposed position, not a single animal was struck by lightning.

In conclusion, gentlemen, I thank you for the kind attention you have given to my remarks; I have endeavoured to place before you a few facts, and to describe what *post-mortem* lesions are most likely to be found after death by lightning. Whilst preparing this paper, I have come across many rather romantic tales, the results of a flash of lightning, and although some of them may be true, the date and unlikely circumstances of the majority requires more modern confirmation. I hope all of you, especially those who are practising in country districts, will give your opinions and experiences on this subject.

Discussion.

The CHAIRMAN initiated a discussion upon the subject, regarding which, he said, they had little literature, and their practical knowledge was meagre. He thought that in justice to their own consciences they should know what they were doing when they were called upon to examine the carcase of an animal and give a certificate as to whether it had died from the effects of lightning. He believed that when stockowners were insured against fire the insurance included compensation for deaths of stock by lightning, and many

people were, as they were aware, eager to make the best of their opportunities and receive compensation when they could. He narrated some of his own experiences, and said that when they were consulted in regard to lightning cases they should look for signs on the grass and trees that there had been lightning.

Mr. MASON agreed with the Chairman as to the absence of literature on the subject, and, referring to *post-mortem* examination, said he had noticed that when an animal had been struck by lightning the blood did not coagulate. The blood in the heart was in a perfectly liquid state.

Mr. PICKERING remarked that decomposition took place very quickly in an animal which had been struck by lightning. Was the carcase of an animal so struck fit for food? One authority said that if the animal was bled soon after it was struck it was fit for food. He thought that many of the animals that were struck were affected by what was called the counter-shock. The conditions of the carcase were similar to those noticeable after strangulation.

Mr. BOWMAN considered the *post-mortem* examinations most unsatisfactory in their results. He remembered a case where a man saw the lightning strike a mare and kill her in a moment, but when he (Mr. Bowman) came to make the *post-mortem* examination he could neither find the hair singed nor any discolouration under the skin. Often, however, they did find the hair singed and the skin discoloured.

Mr. FRANK SOMERS observed that during the past two years he had seen many animals which had been killed by lightning. His experience was that laceration and deep injuries rarely occurred, but that singeing of the hair and redness under the skin were generally apparent. As Mr. Bowman had observed, *post-mortem* examination were not wholly satisfactory, but often they were able to ascertain some indications that would warrant them in giving an opinion as to whether the animal had been killed by lightning or not.

Mr. CLARKSON said his experience was that, as a rule, they saw very little singeing. Most of the animals met their death or received their injuries by the counter-shock or recoil, and in those cases there were no external marks. As to the question of insurance, he thought it was not only a great hardship upon the owner, but distinctly cruelty to the animal that the insurance companies did not pay till the horse or cow died. In all humanity the insurance companies ought to settle the claim sooner than they did.

In replying to the discussion, Mr. WHARHAM said he thought it was settled that the blood did coagulate after death by lightning. As a rule, the electric fluid took the course of the blood-vessels. Rapid decomposition was undoubtedly a fact, and in a great measure was hastened by the heat which obtained during the time of thunderstorms. Counter-shock, as pointed out by Mr. Pickering and Mr. Clarkson, was a frequent cause of death. With reference to another point raised by Mr. Clarkson, he thought that the insurance companies should consider animals which were totally disabled as dead, and not wait for them to die of their injuries. If an animal was totally disabled, it was equivalent to being dead.

On the motion of Mr. MASON, seconded by Mr. CLARKSON, and supported by the SECRETARY, a cordial vote of thanks was accorded to Mr. WHARAM for his paper, and the proceedings terminated.

FRANK SOMERS, *Hon. Sec.*

LANCASHIRE VETERINARY MEDICAL ASSOCIATION.

THE Quarterly Meeting of the Lancashire Veterinary Medical Association was held at the Grand Hotel, Manchester, on Thursday, April 25th, 1895. *Present:* The President (Wm. Dacre, Esq.,) in the chair; Messrs. J. B. Wolstenholme, W. Ackroyd, H. Hall, J. H. Carter, W. A. Taylor, A. Munro,

T. Hopkin, Wm. Woods, E. H. Stent, H. B. Allen, F. B. Pearson, E. E. Wood, R. C. Moore, F. W. Hall, and Geo. Howe.

Mr. HOPKIN proposed and Mr. CARTER seconded that the minutes of the last meeting be taken as read. This proposition was carried unanimousyl.

The SECRETARY read various letters respecting the action of the Board of Agriculture.

Mr. HOPKIN proposed, Mr. W. A. TAYLOR seconded, and it was carried unanimously that Mr. Robert C. Moore, M.R.C.V.S., Manchester, be elected a member of the Association.

Mr. HOPKIN nominated Mr. King, M.R.C.V.S., of Manchester, for membership, Mr. WOLSTENHOLME seconded.

Consideration of Election of Members of Council of the Royal College of Veterinary Surgeons.

The SECRETARY read a letter from the Royal College of Veterinary Surgeons.

The PRESIDENT said he had received a letter from the Secretary of the Eastern Counties Veterinary Medical Association, Mr. Shipley, *re* the selection of a candidate for the Council and asking for the support of the Lancashire Veterinary Medical Association, and said he thought there could be no doubt from a letter he had received from Mr. E. Faulkner on the same subject, that the Lancashire Veterinary Medical Association were under a certain amount of obligation to the Eastern Counties Association, and that the former could not do better than reciprocate in the matter if they had a chance of doing so. He left the question with the members to say what they might think proper, and awaited any suggestions as to names and so forth.

Mr. W. A. TAYLOR proposed that Mr. Samuel Locke be asked to become a candidate, and in the event of obtaining his permission, that the office bearers with other gentlemen whom the President may select, shall be appointed to further his candidature and endeavour by all means in their power to secure his election. He had no doubt that the members of the Society would acquiesce in the desire of the Eastern Counties Association to assist them in their endeavours to elect Mr. Bower as member of Council of the Royal College of Veterinary Surgeons. It would be a matter for the Committee to decide as to whether a joint circular should be issued.

Mr. CARTER seconded Mr. W. A. Taylor's proposition that Mr. Locke be approached with regard to his candidature for the Royal College of Veterinary Surgeon's Council.

Mr. DACRE referred to the great loss the Society had sustained in the death of Mr. Thomas Greaves, and paid tribute to the untiring interest and life-long devotion of Mr. Greaves in the foundation and development of veterinary medical associations, and to every object which went for the improvement and advancement of the profession. He moved that a letter of condolence be sent to the representatives of the deceased gentleman.

This was seconded by Mr. J. H. CARTER, and carried unanimously.

The PRESIDENT (Mr. Dacre) then introduced the subject of fracture of the pastern in horses. He related a number of cases, and exhibited a variety of interesting specimens, which was followed by discussion.

Mr. J. H. CARTER, of Burnley, then brought before the members several subjects of deep interest to the profession, and also exhibited and gave the history of several specimens taken from cases which had come under his observation.

The SECRETARY stated he had letters, apologising for non-attendance, from Professor Williams, Professor Owen Williams, Professor Penberthy, Messrs. Peter Taylor, R. C. Edwards, R. Hughes, E. Faulkner, and J. McKinna.

Mr. WOLSTENHOLME exhibited two tubercular kidneys in the cow, sections

of skin from a case of malignant pustule in man, sections of skin and lymphatic gland showing the bacilli of leprosy in man, various sections showing tubercle bacilli in the horse, bacilli of tetanus, cultivations, various sections showing the bacilli of anthrax.

The SECRETARY proposed a vote of thanks to Mr. Carter for his communication on clinical cases. Mr. MUNRO seconded.

Mr. HALL proposed a vote of thanks to the President for presiding. Mr. WOLSTENHOLME seconded.

THE MIDLAND COUNTIES VETERINARY MEDICAL ASSOCIATION.

(*Continued from page* 381.)

MR. WARTNABY confessed that he was that day more in the position of a learner than a critic. He agreed with Captain Smith that in cases of ruptured stomach, food was most often the cause of it; but he thought it occasionally resulted from falls. He had had more than one case in which horses had been in perfect health, and having had a fall, the symptoms had commenced as soon as the animal had recovered its feet. Captain Smith had told them something of the food as it was received and remained in the horse's stomach, and he (Mr. Wartnaby) would like to know something about the water. Did the water remain long in the stomach? because there were different opinions upon that point.

Mr. GOOCH, after a complimentary allusion to Captain Smith's address, said that not long ago there was a serious outbreak of tympany at the agricultural show at Stamford. They had 14 cases altogether. He thought in the one case which died from ruptured stomach, that it was caused by a fall. It was an old horse that fell at a jump; but he afterwards discovered that it was caused by distension of the stomach, although the fall, no doubt, accelerated the rupture. In his opinion, the cause of the tympany was due to eating second crop clover, which had remained too long on the waggon, and became heated. The show authorities, on finding their supply of fodder falling short, purchased this clover in case of emergency, and all the animals attacked had partaken of it.

Mr. PARKER offered a few remarks on the subject of vomiting. He had seen horses vomit without ruptured stomach, but simply from indigestion.

Mr. JOHN BLAKEWAY said he had derived much useful information from the address, and although it was the first Captain Smith had delivered before their association he sincerely hoped it would not be the last. In respect to the action of the saliva, Captain Smith astonished him when he said it had no action upon starch. He (Mr. Blakeway) felt inclined to ask Captain Smith in what way did saliva assist digestion? Also, when was the best time to water horses. As to the frequent absence of abdominal symptoms, he agreed with Captain Smith to a great extent, but in watching many cases of abdominal mischief, he had found symptoms indicative of certain conditions. When he found horses vomiting, or walking backwards, he thought it pointed very much to ruptured stomach. Of course, the veterinary surgeon was placed at a great disadvantage, because as a rule he was not called in in cases of stomach trouble until the mischief had got well hold. He always attached considerable importance to the condition of the mucous membrane. Having regard to Captain Smith's statement that the entrance of certain food into the stomach forced other food out, he (Mr. Blakeway) thought the practice of feeding first with oats and then with hay ought to be discontinued. It would surely be better for digestion.

Mr. GREEN, in following up the discussion, said he agreed with Captain Smith in saying that in diagnosing stomach troubles it was unsafe to say whether the horse was suffering from gastric tympany or impaction. But at times it was necessary to give the owner of the animal an opinion.

Mr. STANLEY said that in cases of rupture1 stomach, there was one particular symptom which he had nearly always experienced, and that was a constant sighing on the part of the patient. He never found that symptom except in cases of ruptured stomach. In the treatment of tympanitis a favourite remedy of his was ammonia, which was the best thing in his opinion for attacking the carbonic acid gas.

Mr. W. CARLESS said he knew that in making many *post-mortems* they found a great variety in the colour of the mucous membrane of the horse. But he had on many occasions seen it a deep red colour, and associated during life with symptoms of cerebral mischief. He could not help thinking it was due to the condition of the stomach of the horse at that time. It would be new to him to find that the cerebral mischief was due to any other cause. He firmly believed there were certain symptoms which, if regularly noticed, would afford them positive proof that the stomach was the seat of the mischief, such as stretching the œsophagus, elevating the head, depressing the chest; also regurgitating, and a feeling of fear on gas passing up the œsophagus in the manner described.

Mr. TRIGGER thought it would ill become him not to say a few words, if only to express his appreciation of Captain Smith's services that afternoon. There were morbid conditions, which had not been alluded to by Captain Smith, which led them to look for altered positions and size of the stomach where animals had been fed on food not, perhaps, deleterious, but innutritious. In the case of wind-suckers, he took it that the horse swallowed wind. He had never satisfied himself on the point. He was inclined to think that wind-sucking and crib-biting were the results of disease rather than the cause of disease. With regard to boiled food, most of them had read with interest "Smith's Veterinary Hygiene," and he (Mr. Trigger) had often pondered over that particular paragraph in which the assertion was made that boiled food was responsible for ruptured stomach, and he could not in any way trace ruptured stomach to such a cause. He had had horses of delicate digestion that would not thrive, and in those cases he had advocated boiled foods, with remarkable success. It was the finest method he knew of giving the digestive organs a rest. He agreed with Captain Smith that the symptoms of ruptured stomach were few; at the same time, he thought they were very marked.

The PRESIDENT, in closing the discussion, said he had to thank Captain Smith very heartily for his very valuable address, which was one of the best it had been his privilege to hear during his connection with the Association. There were many points upon which Captain Smith had touched with which he perfectly agreed, but there was certainly one thing upon which they apparently did not see eye to eye, and that was on the matter of boiled foods. He (the President) had a great deal to do with thoroughbreds, and the rearing of foals, etc., and he, therefore, often had very delicate animals under his care. When he got such, he put them entirely on cooked foods, and they thrived and did well. He could point to one particular animal in this town, bought three years ago, and for 18 months she never was free from colic for a month together. He used to puncture, but she got in the same condition again. He then advised putting her entirely on cooked foods; she had never since had an attack of colic, and was now fat and blooming, and doing her work well. The food was not administered in its moist state; it was first cooked and then allowed to dry well. Not long ago, he saw a horse at Bath which had nothing but boiled barley and a little hay. Captain Smith had said he believed ruptured stomach to proceed almost invariably from internal rather than external causes. He (the President) believed so himself. But he could point to two cases within his own knowledge where external causes were largely contributory.

Captain SMITH then replied to the discussion. Answering Mr. Blakeway

first, as to the action of the saliva, he said it was purely mechanical. If they diverted the supply to the mouth, the horse would choke. He thought the best time for watering horses was before they were fed. In answer to Mr. Wartnaby, he had to state that water did not remain in the stomach at all.

Mr. WARTNABY here interposed with the question, "Then how do you account for finding medicine in the stomach after death?"

Captain SMITH replied that it was because the stomach was in such a condition as not to admit of the passage of the medicine out of it, very probably paralysis of the stomach. As to the desirability of hay being given first instead of oats, as suggested by Mr. Blakeway, he begged to remind them that some experiments made by a German physiologist had led him to suggest the very same thing. It was opposed to the general practice, and was distinctly based upon experimental inquiry. As to the use of boiled foods, he would not go the length of saying that Mr. Trigger and the other gentlemen present who shared the same opinion had made a convert of him, but he could not help admitting that his eyes had been opened very much on the subject. He had already promised himself to give it a deeper and more searching investigation. As to a wind-sucker swallowing air, he thought there was no doubt whatever about it. The President had asked him a question regarding the effect of frozen food upon the stomach, and he was only sorry that want of experience in that particular matter prevented him answering it.

Mr. WARTNABY moved a vote of thanks to Captain Smith for so kindly coming amongst them and giving them such an interesting and instructive address.

This was seconded by Mr. GOOCH and heartily carried.

Captain SMITH, in acknowledging the compliment said he had been amply repaid for any trouble he might have been put to by the courteous and appreciative hearing which the Midland Association had extended towards him.

The Board of Agriculture.

Mr. MALCOLM said that before the meeting terminated there was a matter which he wished to bring forward which was not upon the agenda. At a meeting of the Central Association held the previous evening, it was resolved to approach the Board of Agriculture with reference to the reported appointment of Major Tennant as head of the Veterinary Department, and the attitude of the Board to the veterinary profession generally; and he (Mr. Malcolm), had been asked to obtain an expression of opinion from this Association.

Mr. STANLEY thought it was a matter which they ought seriously to look to. It was high time the veterinary profession tried to hold its own against such appointments. He would be very glad to move a resolution which would have the effect of supporting the Central Association in any action which they took.

The PRESIDENT suggested that the members of this Association protest against the appointment of non-professional men as head of the Veterinary Department of the Board of Agriculture.

Mr. CARLESS asked whether it was a positive fact that Major Tennant had been appointed head of the Veterinary Department.

Mr. GOOCH thought the best thing for this Association to do would be to have a memorial signed by the whole of the members.

Mr. WARTNABY thought the best thing would be to back up the Central Association.

Two resolutions on the subject were moved—one by Mr. Carless in favour of a protest from this Association to the Board of Agriculture, and the other by Mr. Trigger, suggesting the appointment of a small committee with power to take such steps as they thought most desirable. These, however, were eventually withdrawn, and,

Mr. MALCOLM moved "That this Association petition the Council of the Royal College of Veterinary Surgeons to approach the Board of Agriculture in reference to the appointment in question, and the Board's attitude generally to the veterinary profession, and further, that if other Associations are sending deputations to the Board of Agriculture on the subject, this Association do likewise."

This was seconded by Mr. WARTNABY, and carried unanimously, it being further resolved that the deputation (if required) from this Association shall consist of the retiring President (Mr. Olver), the President-elect (Mr. Wartnaby), and the Hon. Sec. (Mr. H. J. Dawes).

Next Place of Meeting.

This question formed the subject of considerable discussion, Birmingham, Worcester, and other places being in turn suggested. Eventually, in deference to the wish of the President-elect, it was resolved that the next quarterly meeting should take place at Burton-on-Trent.

The Annual Dinner.

At the conclusion of the business, the members adjourned to another room, where the annual dinner was held. Mr. Olver occupied the chair, being supported on the immediate right by the President-elect, and on the left by the guest of the day, Captain Smith. A short but appropriate toast list was gone through, and the proceedings were characterised by the utmost harmony and goodwill.

H. J. DAWES, *Hon. Sec.*

THE VETERINARY MEDICAL ASSOCIATION OF NEW SOUTH WALES.

A MEETING of veterinary surgeons was held on Monday, October 22nd, 1894, in Sydney, N.S.W., when the following gentlemen were present:—Messrs. E. Stanley, K. Symons, John Stewart, F. W. Melhuish, W. C. Quinnell, T. Green, J. D. Stewart, Guthrie, and A. P. Gribben.

Mr. J. Stewart was voted to the chair. Mr. Gribben was elected secretary *pro tem.*

On the motion of Mr. SYMONS, seconded by Mr. MELHUISH it was unanimously resolved—"That an association be formed with the title of The Veterinary Medical Association of New South Wales."

Rules were then drafted and referred to a committee, consisting of Messrs. Green, J. D. Stewart, and A. P. Gribben, for revision prior to submitting same for confirmation at the first meeting, to be held on Monday, November 12th, 1894.

Roll of Members.

Messrs. Edward Stanley, F.R.C.V.S., S. T. D. Symons, M.R.C.V.S., F. W. Melhuish, M.R.C.V.S., A. E. G. Robinson, M.R.C.V.S., John Stewart, V.S. (H. & A. S. of S. certificate), Jas. D. Stewart, M.R.C.V.S., S. C. Pottie, M.R.C.V.S., John Pottie, V.S. (H. & A. S. of S. certificate), P. Green, M.R.C.V.S., A. P. Gribben, M.R.C.V.S., W. C. Quinnell, M.R.C.V.S.

Extracts from Minute-Book.

First monthly meeting held on November 12th, 1894, Mr. John Stewart in the chair. There were also present—Messrs. E. Stanley, T. Green, W. C. Quinnell, J. D. Stewart, and A. P. Gribben.

Rules were adopted, and the election of office-bearers resulted as follows:—President, Mr. John Stewart; vice-president, Mr. Edward Stanley; hon. secretary and treasurer, Mr. A. P. Gribben.

Second monthly meeting held on December 10th, 1894, the President in the

chair. *Present*—Messrs. E. Stanley, J. D. Stewart, T. Green, A. E. G. Robinson, Fenner, and the Secretary.

Mr. Stanley exhibited specimens of bovine melanotic cancers, taken from cattle condemned at sale-yards.

Mr. J. D. Stewart exhibited—(*a*) portion of reticulum of cow, showing numerous amphistoma conicum attached to mucous membrane; (*b*) portion of bowel of dog, showing intussusception at ileo-cæcal valve, with tapeworms (*Pacnia marginata*).

The President delivered his inaugural address as follows:—

Gentlemen,—It having fallen to my lot to have the honour conferred on me of being elected president of this, I believe to be, the first formed veterinary medical association in New South Wales, I desire to express, to one and all, my grateful thanks for this expression of their kindly feelings and respect. At the same time, I feel constrained to confess that I fall short in the many gifts, attainments and graces, even when measured by my own standard of what I conceive a president of such an important and learned association should be. But it appears to me to be the general way of things and events in this world and life, that most great works, scientific knowledge, and patriotic reform ofttimes spring from very humble and modest beginnings, and that it is the small things that build up and dominate the large, and this seems to me to be in conformity with the laws of nature, in the building up of the ascent of man, and with man a higher development and usefulness, both in the animal and vegetable kingdoms.

Some thirty years ago, or maybe, more, the veterinary surgeons in New South Wales found themselves in a very grave and depressing position, being neglected and ignored not only by the breeders and owners of domesticated animals, but also by the Government and the courts of law and justice. They were also surrounded on every hand, in every district, by the so-called farrier or horse doctor, terms which were used synonymously, a class of men who sprang from horse-shoers, little farmers, stockmen, stallion leaders, and butchers, who had no education or special training to enable them to practise the veterinary art, and but few of them had even accomplished the feat of mastering the three R's. They were very glib of tongue, possessed little or no conscience, were very assertive, large in promises, and very positive as to the nature of the disease, and what would cure it. Verily they did all the doctoring and gave abundance of advice gratis.

During these trying times the veterinary surgeon was often placed in extremely trying and straitened circumstances, verging on despair and abandonment of their profession, but the love of their profession, with the strong and imperishable conviction in their souls, that they had knowledge and power with themselves, and justice on their side, fortified and strengthened them to go onward and forward, so that by their abilities, truthfulness, and rectitude of character and earnest, honourable lives, the veterinary surgeon has now become valuable, sought after and respected. So now we find him associated with the medical profession, in the boards of health and sanitation, in very responsible Government positions, and his evidence in courts of law commands great respect and value. All this has been accomplished by the veterinary surgeons working silently, and individually, after many years of labour and hardship, during which not a few good men succumbed and the world knew them no more. But a new, a stronger, and a brighter life is dawning on veterinary surgeons in New South Wales. We have formed ourselves into an association for the elevation and advancement of the profession, by educating the public into the benefits that are to be derived by calling into their service the specially educated and trained abilities of the veterinary surgeon, who will, as he ever has, place it beyond all doubt, that he is the most capable and profitable person to administer to the needs and wants

of our domesticated animals when in pain or sickness, and that it would be greatly to the advantage and profit of breeders and owners, to consult him as to the care and management of their stock and to the sanitation of their establishments.

In this way we may fairly anticipate that the care and management of our domesticated animals would be greatly improved and elevated, thereby bringing about a mutual benefit, as between owners of stock and veterinary surgeons, and at the same time our national wealth would be largely conserved and increased.

Now, if in the past, veterinary surgeons have advanced and accomplished so much under adverse surroundings, surely it is most reasonable to anticipate, that having formed themselves into an association, and become one solid, cohesive body, pledging themselves with all their individual might and main to elevate and advance the veterinary profession, to discuss the principles and practice of the veterinary art and veterinary scientific subjects, a new and hopeful future should be in store for the veterinary art in New South Wales, and one which should make its mark felt for great good in the sphere of the afflicted and suffering.

I am sure that every member of this Association acutely feels the grave and responsible position; to enlighten and educate the public is a long, a trying and a never-ending work, beset with many difficulties and disappointments, but in the end the love of our noble profession, with the heartfelt desire to relieve pain and suffering, will more than conquer all, and lead us into a haven of peace and rest, with the soul rejoicing, knowing that we have honestly striven to save pain and life, and to benefit the world in our day; a reward which will not depart from us when sickness or age has blunted all the senses, and the body has lost its capacity to enjoy life, but will abide with us unto the very end of life and go with us into the great unknown. Without doubt the members of this Association will now both individually and collectively come more under the observing eye of the public and kindred associations than ever before, and will be subjected to a larger amount of criticism, which will be most heartily welcomed if it is honest, fearless, and intelligent, for we concede that such criticism is the builder up and purifier of all great nations, works, deeds and aspirations, and in the absence of which many people and nations have been left in or have fallen into ignorance, superstition and slavery.

As to our own internal economy, I suppose it is in conformity with the constitution of mankind that there should be difference and divergence of opinions amongst us, and how can it be otherwise, when other eyes give different impressions to other brains, and that the tendency to extremes is very great, and hardly to be avoided on all occasions, even by the best trained and most cultured intellects?

Yet that and all other difficulties and obstacles which may beset our path will be overcome and vanquished if we approach our work in the spirit of true brotherhood, and have nothing else in view but the desire to advance the veterinary profession, to save pain and life, and do good in our day and generation.

In conclusion, I would in the name of this Association most earnestly plead with such of our professional brothers as have not yet joined, to do so without further delay, so that they may help and strengthen us in the great and noble work we have set our hearts and hands to perform.

Third monthly meeting held on January 14th, 1895.

Formal Business Transacted.

Three associates and one member nominated.

Fourth monthly meeting held on February 11th, 1895, the President in the chair. *Present*—Messrs. Quinnell, Melhuish, Robinson, T. Green, J. D. Stewart, and the Secretary.

One associate was nominated, one member and three associates were lected.

Moved by Mr. STANLEY, seconded by Mr. J. D. STEWART, that a letter of condolence and sympathy be sent to the bereaved widow and family of the late Professor Walley.

Mr. ROBINSON opened a discussion on "The present position of veterinary science in the Colonies." He especially dealt with the desirability of taking steps to obtain an Act of Parliament to protect the qualified practitioner, mentioning several cases of quacks openly using "M.R.C.V.S." Reference was also made to the movement in England to ensure protection to the qualified man abroad, the general opinion being that as far as this colony is concerned, the only action promising any benefit would be to bring the matter before the Agent-General who, in his turn, would submit a report to his Home Government. After a general discussion, a committee consisting of Messrs. J. Stewart, E. Stanley, W. C. Quinnell, and A. P. Gribben, was appointed to enquire into the matter of obtaining an Act of Parliament.

Fifth monthly meeting held on March 11th, 1895, the President in the chair. *Present*—Messrs. Stanley, Quinnell, F. W. Melhuish, T. Green, J. D. Stewart, F. C. Stewart, J. M. Stewart, and the Secretary.

Mr. C. J. Vyner, M.R.C.V.S., was nominated as a member, one associate elected.

Mr. STANLEY exhibited the following morbid specimens:—(*a*) Large hydatid cyst in the left ventricle of a pig's heart, showing atrophy of walls; (*b*) Tubercles in kidney of ox; (*c*) Hair-balls from stomachs of pigs.

Mr. J. D. STEWART read a paper on "Mechanical Lameness: its Diagnosis." Discussion adjourned till next meeting.

Extracts from Foreign Journals.

VAGINITIS VERRUCOSA.

IN January of this year, I was requested by the police authorities to examine the parish bull, which was said to be suffering from a vesicular eruption. I was informed that the animal had been eating poorly for a week past, that he was falling off in condition, that he showed purulent excretion at the sheath, and would no longer serve the cows. On examination I found general dulness, defective appetite, scanty, dry fæces, restlessness, pain on lying down, frequent rising up, great pain during urination, stamping with the feet, violent switching of the tail, striking of the belly with the feet. The urine came away in a regular stream, and was in colour and consistence quite normal. The mucous membrane of the penis was bluish-red, and showed roundish ulcers, covered with purulent mucus and whitish shreds; it was very sore to the touch.

In the small parish there are some 70 to 80 cows; about these, it was reported to me, that some 12 were suffering from *fluor albus*, and that a larger number, although apparently healthy, were not with calf. On investigation, I found that a number of cows *were* suffering from *fluor albus*, without showing other symptoms in the mucous membrane of the vestibule. In others—some 17 or so—I found in the neighbourhood of the clitoris, or a little farther forward, where the walls of the vagina approach, little nodules, which could be easily seen and felt; they were quite smooth to the touch.* Their size

* The term, "verrucosa," seems to me, for this reason, not quite suitable. With the word "verrucosa" (warty), one associates rather the idea of a raw, ragged surface.

varied from a small pin-head to a millet-seed. They were found sometimes singly, sometimes in groups, sometimes scattered over the whole of the mucous membrane. Their colour was bright red, so that they were quite distinguishable from the yellowish-red colour of the membrane. I observed no interference with the general health of the cows, no pain in urination, no swelling of the labia, and no abnormal secretion. Not one of the patients, although eight or ten times bulled, had become pregnant. For months past they had been wanting the bull every two or three weeks. None of the virgin-animals were affected in the way I have described. The nodules had, up to this time, not been observed by any of the proprietors. It was not known that any of the animals had ever been ill, or had aborted, or had had trouble in calving. The only astonishing thing to the owners was their sterility. It was, therefore, impossible to ascertain how long this chronic inflammation of the mucous membrane of the vestibule had been going on.

I describe the malady from which the bull was suffering as a diphtheritic inflammation of the mucous membrane of the penis, caused by intercourse with cows suffering from *fluor albus*. Whether between these ailments—which were undoubtedly connected with each other—on the one side, and the *vaginitis verrucosa* on the other, there is an ætiological connection, I leave undecided. In vesicular eruptions amongst cows I have never observed, after healing of the vesiculæ, any nodular formation such as I have described. Even in text-books nothing is said about it. There is no resemblance to the smooth or radiating whitish-yellow cicatrices which often result after healing of the vesicular outbreaks.

The cows which had been served by the bull shortly before the appearance of his ailment were some of them affected with *fluor albus*, some quite free from disease of the genitals. The cows suffering from *vaginitis verrucosa* had none of them been at the bull for at least four or five weeks past.

My treating of the *vaginitis* consisted in washing the vestibule three times a day with a solution of lysol—a cupful to a bucket of tepid water. Although this treatment was carried on vigorously, there was no improvement visible, even after fourteen days. Trommsdorff tried nitrate of silver, bichlorate of mercury, alum, and other drugs in similar cases without success; for this reason I had avoided the application of severe remedies, and at the end of three to four weeks I obtained a cure with the lysol treatment. If anyone examines closely the places where the nodules were in the cows he can certainly see a few reddish-coloured spots, but the finger finds no obstruction when passed along the vulva. Some of the cows have since been served by a bull from a neighbouring parish, and no contagion has resulted; whether they have become pregnant cannot yet be decided.—*Contributed to the "Berliner Thierärztliche Wochenschrift" by Veterinary-Surgeon Froehner, of Hünfeld.*

STOPPAGE OF URINATION IN A HEIFER FOLLOWED BY APOPLECTIFORM DEATH.

On 25th November last I was called in to prescribe for a heifer that had become suddenly very ill. Up to the time of my visit she had been by all accounts quite healthy, and seemed well nourished when I saw her. She lay with her legs drawn up under her belly, was unable to rise, had a dull heavy look and groaned frequently. The visible mucous membranes were red-coloured; temperature *per anum* 39·6 Cent. (= 103° Fahr.); the pulse was making 82 regular but weak beats per minute. The animal was drawn out of its confined position, which made inspection difficult, into the open passage; at first she allowed us to do with her as we liked, then suddenly she became obstinate, gave a loud groan, tried to jump up, staggered for a moment, then fell all of a heap and died. She was promptly bled and there-

after I examined her; the autopsy showed stomach and intestines, spleen and liver, lungs and heart normal, and pericardium likewise. In the brain and spinal marrow no pathological alterations were visible to the naked eye; not even in the kidneys was there anything anomalous. The bladder was very greatly enlarged. The ureters showed, at about one-third of their length above the bladder, and at a point which almost exactly corresponded in both, a shrunken part, 1·8 cm. (= about seven-tenths of an inch) in length; here the ureters felt stiff, were of almost cartilaginous consistency and allowed only a very fine sound to pass. From this point onwards to the mouth of the bladder both ureters were considerably widened, their walls were thin and they were choke-full of retained urine. The bladder was double its ordinary size, its walls were pale and thin, because muscularly atrophied. Towards the neck of the bladder the muscular tissues gradually increased in strength and finally formed a strong sphincter, in which, however, apart from its unusual strength, no pathological peculiarities were to be observed. The sphincter could only with difficulty be passed by a bougie, introduced from without. There was not the slightest trace of gravel, or swelling, or any alteration in the mucous membranes. The retention of the urine can have been brought about only by a (rheumatic?) spasm of the sphincter. The strictures of both ureters have really no connection with this. At the same time the immediate cause of the apoplectiform death was not explained by any discoveries made at the *post-mortem.—Communicated to the "Berliner Thierärztliche Wochenschrift" by Veterinary-Surgeon Petersen.*

CONTAGION OF TETANUS AND ITS TREATMENT BY OIL OF TURPENTINE AND THE MILK-REGIME.

SOME years ago I did not believe in microbes. Having, like so many others, seen tetanus develop out of a simple chill, in the case of horses that have undergone operations and otherwise, I could not conceive that in one or other part of the organism a deadly focus could be established, which should secrete the poison of this terrible, this appalling disease. Now I think differently, and believe in microbes.

In a paper which I wrote recently I made the following statement:—"Medical science has hitherto rejected in principle all idea of direct contagion of tetanus, that is, transmission to the healthy subject suffering from a wound. Now, if this contagion has not been *proved*, I nevertheless assert the following convictions, based upon a series of observations honestly collected during a number of years from my daily practice. First, a patient dying of tetanus or recovering either by natural process or by some mode of treatment, creates in the surroundings of the place where it was treated a dangerous focus, in which the danger lurks *for years*. Second, a patient that has been wounded or has undergone a surgical operation, such as castration or docking of the tail, or has been pricked by a nail, if introduced into this place before it has been disinfected runs the risk of *indirect contagion*. Third, this risk is so great that I am horrified at the number of cases that daily justify, or seem to justify, any statement." Like many other practitioners who perform castration and tail-docking on a large scale, I have come to treat my patients by a uniform method which, although not infallible, gives astonishing results—I mean the administration internally, in successive doses, of oil of turpentine (ess. terebinthi). Two new cases have just occurred in my practice, but before detailing them I should like to mention some former cases of great interest.

For the last ten years I have castrated all the colts at the village of A., and I had not had a single case of tetanus following thereupon. The owner of a mare had her docked by the village farrier; a few days later this mare was attacked by tetanus after being exposed to a cold rain; the tetanus became

acute and death occurred in forty-eight hours. The following spring I went to castrate the colts of the village as usual. P., the owner of the mare, had just one colt to castrate; after the operation the colt was placed in the stable where the tetanic mare had died. Result, acute tetanus and death in forty-eight hours. No comment is necessary. I will only say that not a single inhabitant of the village can remember a case of tetanus on that farm.

Village of M.—Mare pricked by a nail, attacked by tetanus, treated by a surgeon, dies. Colt is castrated in May and placed in loose-box, which had not been disinfected. Death from tetanus.

Village of P.—Mare pricked by nail, tetanus, death. Six months later a mare foals normally in the same loose-box; acute tetanus, death. This case seems to me quite extraordinary, for in a practice extending over tweuty years I have never had occasion to observe tetanus in a mare after parturition.

The recent cases are as follows:—

May, 1893.—M. Thiéry's stable at E. Tetanus following on castration in a colt a year-and-a-half old; violent trismus, general rigidity; cure by oil of turpentine at the end of 21 days.

June, 1894.—M. Thiéry gets three horses docked by the village farrier; one of these (a two-year-old filly), is put in the very place where, a year before, I had treated the castrated colt. Result, acute tetanus, death. The other two animals—one of them being my tetanic colt of the preceding year—recover from the results of the operation.

June, 1894.—M. Brogard's stable at G. Three-year-old stallion pricked by a nail; posterior tetanus at the commencement, rigidity becomes general, then violent trismus, interrupted deglutition; kept in slings for three weeks, slipped through them twice, fell on the ground, was raised again. Recovered after swallowing three litres (= 5¼ pints) of oil of turpentine, along with an equal quantity of olive oil. This stallion is at present serving mares.

January 5th, 1895.—Six months old colt picked up a nail which did not even make him lame; there was very slight suppuration. This colt occupied the very box of the stallion above described. Between the 5th and 10th of January he was seized with acute tetanus; frightful rigor, trismus. I gave him 100 grammes (= 3⅓ ozs. av.) of the mixture (ess. tereb. and olive oil) per day until he had taken 800 grammes of essence. Then, deglutition having become absolutely impossible—the incisors being completely locked together—I fed him with warm milk, which seemed to do him good. The patient, suspended in the same slings which had served for the stallion, is now (February) out of danger. The trismus is reduced. He nibbles eagerly a mixture of oats and finely-chopped carrots; the general rigidity still persists, but will probably disappear gradually. The œdema of the limbs and of the sheath is, in my opinion, a *very favourable* symptom. It indicates, of course, a disorganisation of the renal organs caused by the abuse of the diuretic, but also a return to the normal condition.

These two cases support, I think, the opinion which I have enunciated. It may be said that they were mere coincidences, but, coming as they do in support of so many other observations made with the utmost care, they seem to me to dispel all doubt. Neither M. Thiéry nor M. Brogard had known a case of tetanus in their stables until those occurred which I treated. Was the *cure* in these cases due to my method, or was it likewise a mere coincidence? I think not, because I save three-fourths of my patients by this method. Neither can I attribute to chance the fact that, in a whole series of cases of tetanus, the germ of the disease was plainly gathered on the spot where other cases had been treated six months or a year previously. So convinced am I of what I say that I should now refuse to castrate a horse if I found that it had to be stabled where another had died of tetanus.—***Contributed to the "Recueil de Médecine Vétérinaire" by M. Hartenstein.***

Notes and News from Foreign Journals.

DOGS IN ICELAND.—The authorities in Iceland, says *La Revue Scientifique*, have forbidden the introduction of foreign dogs into the island. This prohibition is owing to the fact that a disease which was traced to a dog imported from abroad, and which was formerly unknown, has carried off the greater number of sheep-dogs employed in the country.

PUNISHMENT OF EMPIRICS.—The *Progrés Vétérinaire* states that at Parthenay, the criminal court sentenced a quack—who, by the way, was mayor of his commune!—to pay a fine of 250 francs (£10), and expenses, for having "professionally" attended some tuberculous animals. Another empiric was sentenced at the same court to pay a fine of 50 francs and expenses.

TETANUS IN A PIG.—M. Garlitchscoff, a Bulgarian veterinary surgeon, gives an account of a pig, four or five months old, which showed all the phenomena of tetanus ten or eleven days after being castrated by an empiric. The symptoms were absolutely perfect; the muscles of the head, neck, back, lumbar regions—of the whole body, in fact—were as hard as wood; the tail and ears were slightly elastic, and when moved by the hand, returned to their former position. The animal died in a few days.

CASTRATION OF A MARE THROUGH THE FLANK.—Veterinary Surgeon Martin details in the *Wochensch. für Thierheilk.*, a case of a mare that understood this operation. She was cast and shackled, her two fore-feet and two hind-feet being tied separately on a strong pole in such a way that the two pairs of feet were as far apart as possible. An incision 15 centimetres (about six inches) long, in a slightly oblique upward and forward direction was made in the left flank. The search for the ovaries was rendered easier by the use of Richter's vaginal sound; they were removed with the help of an *écraseur*. The left ovary contained numerous cysts. The cure was simple and rapid, but at the end of three weeks it was found that the mare had lost none of her bad habits.

A CARGO OF INFECTED SHEEP.—We learn from the French papers that a cargo of sheep, some of which were found to be infected with scab, arrived from South America at the Port of Havre recently, and another cargo at Dunkirk. The Minister of Agriculture prohibited the landing of these animals, but allowed the vessels to remain in quarantine until the whole of the infected animals should recover; he ordered the immediate slaughter of the sheep, still healthy, that had been in contact with the others. This will take place at the port of arrival, and orders have been issued that the landing-piers and all the ground traversed by the sheep, likewise the slaughter-houses, and all places occupied by them, shall be disinfected at the expense of the shippers.

HONOUR TO VETERINARY SURGEONS.—The following names have been added, by command of the President of the French Republic, to the list of *Officiers du Mérite Agricole*, being already Officers of the Legion of Honour:—(1.) M. Chauveau, member of the Academy of Sciences, Inspector-General of veterinary schools; (2.) M. Trasbot, member of the Academy of Medicine, Director of the National Veterinary School of Alfort; (3.) M. Nocard, member of the Academy of Medicine, Professor in the Veterinary School of Alfort.—M. Eugène Duquesne, Veterinary Inspector at Buchy (Seine-Inférieure), has been appointed *Chevalier du Mérite Agricole*.—M. Degive, Director of the Veterinary School at Cureghem (Brussels), has been appointed Officer of the Order of Leopold.

HORSES AND MECHANICAL TRACTION.—*La Nature* says:—"If we may believe what American trade-journals say, the horse industry in that country is on the decline and prices have fallen more than sixty per cent. within the

last few years. This state of matters—a very serious one for the farmer—is owing, it is said, partly to the progress of mechanical traction, especially electric traction on tramways, and partly to the development of the "steel horse," the bicycle—a horse always ready for the road and one which requires no feeding. There were sold in 1894 more than 200,000 bicycles in the United States alone, and it is thought that the sale in 1895 may perhaps exceed 300,000. The same state of things will doubtless prevail in France, if not through mechanical tramways, at any rate through the use of bicycles, and the fall in prices for horses will be intensified when by the development of vehicles driven by petroleum and gazoline, not to speak of electricity, the ordinary cab shall have disappeared from our streets."

Notes and News.

PENETRATION OF MICROBES INTO THE BLOOD.—M. Nocard recently reported to the Society of Biology, of Paris, the results of some experiments which he has been conducting, from which it appears that the blood sometimes contains microbes, although no germs could be found by microscopic study of the blood. Cultures made from the serum of blood, collected with such precautions as to prevent the possibility of infection, indicate that microbes are sometimes present, and especially during digestion. The latter fact has led M. Nocard to believe that microbes find their way into the blood through the intestinal wall. Examinations made upon dogs recently fed, and upon fasting dogs, have shown that the blood of fasting dogs is always sterile. The portal blood was also found sterile in dogs that were fasting. The intestinal contents contained a few microbes. Four hours after feeding, however, it was noticed that the number of microbes present in the intestinal contents was small if the food taken contained little fat, but very large if fat was present in considerable quantities. It was also observed that when fat was present, the innumerable colonies which developed, rapidly liquefied gelatine. Both cocci and bacilli were found in the blood. The experiments made seemed to indicate that microbes were conveyed into the blood by minute fat globules.—*Bacteriological Notes.*

EXTRACT FROM THE REPORT TO THE ROYAL COMMISSION ON AGRICULTURE BY THE ASSISTANT AGRICULTURAL COMMISSIONER FOR SCOTLAND.—In the chief feeding counties which he visited strong indignation was expressed that Canadian store cattle should be excluded from this country, while at the same time fat Canadian cattle were landed at our ports, slaughtered there, and then put into competition in our home markets against home-fed and home-bred stock. The all but unanimous opinion of those engaged in the feeding industry was that our ports should be again opened to Canadian stores. They were keenly alive to the necessity for rigidly protecting our home flocks and herds against the introduction of disease, but one and all agreed that it had not been proved by any investigations made hitherto that there was greater risk of disease being imported from Canada than from Ireland, from which country the store supplies for Scotland at present chiefly come. Their experience had been that the stores brought from Canada were peculiarly exempt from bovine ailments, and most, if not all, added that if the Irish stores were to be subjected to the same test as had been applied to the Canadian stores, quite as great, if not greater, evidence of disease would be found among them as had been alleged to have been discovered among the Canadian stores. At the same time, it was necessary to mention that most of those engaged in the breeding and rearing of stock held quite an opposite view, and argued that the supplies of store cattle available in Scotland or brought from Ireland were sufficient for the requirements of

feeders, and that the present system of excluding the Canadian stores should not lightly be departed from.

PROFESSOR M'EACHRAN, the veterinary expert of the Dominion Government, has in a recent interview, published in the Canadian press, given some information that is interesting in its bearings on the cattle trade. If his statements are correct, it would appear that the export of cattle from the United States and Canada, is likely to show a falling off this year, owing to the short supply on the other side, and to the consequent advance in prices that has taken place. Dr. M'Eachran mentioned that the scarcity of cattle has been especially felt in Chicago, Kansas City, and Omaha, where, he adds, it is a positive fact that there has been a shortage of over 300,000, probably 400,000, head of cattle. The result is that cattle have risen in value, and probably will continue to do so for the next two or three months. While there may be a check in the advance when the grass-fed cattle become available, it can, however, be only temporary; and he believes that next year prices will be higher in the United States than they have ever been before, and it would not surprise him if beef cattle became so scarce and so dear as to stop—if not entirely, at least, to a very large extent—the export to European markets. Dr. M'Eachran further states that though there will always be a large number of cattle of inferior grades which must find a market in Chicago and other packing centres, high-class steers and fat cattle generally will, in his opinion, hold the present prices for the next three or four years. These conclusions he has arrived at after consultation with men largely interested in the business in the United States. Dr. M'Eachran also stated that the question of scab in sheep was attracting much attention in Canada, and that the Government were considering the advisability of making the dipping of sheep before shipment compulsory. This measure is under review, not because scab is at all prevalent, but in order that Canadian sheep may bring the highest possible prices in the markets here.

THE TREATMENT OF HORSES.—The committee of the Humanitarian League wish to call public attention to the brutal treatment to which horses are frequently subjected, through thoughtlessness or cruelty, in London and all parts of the kingdom. It is a common occurrence, in town and country alike, to see horses (often heavily over-loaded) savagely struck by their drivers for no fault whatever—except, as is usually the case, the fault of the drivers themselves. The officers of the Royal Society for the Prevention of Cruelty cannot be everywhere; and it is obvious that the large number of convictions yearly obtained by their efforts can represent but a small percentage of the instances where cruelty occurs. The most natural and effective remedy for this public scandal would be for the police to act promptly, and on their own initiative, when such cases are witnessed by them. At present, the duty of preventing cruelty to animals is practically left to the agents of a private society (the R.S.P.C.A.), and to any humane individual who may remonstrate or intervene—the police on duty will, in nine cases out of ten, see nothing and hear nothing, unless forced to do so by the bystanders. There is no valid reason why, in this particular form of offence, the enforcement of the law of the land should be left to private enterprise. It would be quite possible for the police, by resolute action, to repress the common ill-usage of horses which is now a subject of daily observation and complaint. Again, much unnecessary suffering is caused to 'bus and tram horses by the frequent stoppages, and the consequent repeated strain of re-starting. During the past year the Humanitarian League has issued an appeal to passengers, requesting them not to stop the cars unnecessarily. This appeal has been adopted by a considerable number of companies; though, on the other hand, some managers (especially in London) have refused to exhibit it in their cars. It would be well if public opinion and the voice of the Press would exert itself on this subject. What

is most needed is the establishment of fixed stopping-places on our 'bus and tram routes; but, failing that, some means should be taken to draw the attention of passengers to the suffering which their thoughtlessness involves. There is one further point on which a word remains to be spoken. It is earnestly to be hoped that all public bodies, county councils, vestries, etc., will prohibit the use of the bearing-rein in the case of their own horses, and so set an example which private individuals may follow.—H. S. SALT, Hon. Sec., Humanitarian League, 38, Gloucester Road, Regent's Park, London, N.W.

THE NATIONAL VETERINARY ASSOCIATION.

THE Annual Meeting this year will be held in Birmingham, on July 24th and 25th. A paper on Abdominal Surgery will be read by Professor Macqueen, F.R.C.V.S. Discussion to be opened by Professor Dewar, F.R.C.V.S. A paper will also be read by H. Olver, Esq., F.R.C.V.S., and discussion opened by Professor McFadyean, F.R.C.V.S.

DEATH OF MR. HENRY J. GOODALL, OF MELTON MOWBRAY.

MR. HENRY JOHN GOODALL, M.R.C.V.S., of Melton Mowbray, died at his residence in Burton Street as noted in our last issue, after an illness of a most distressing and lingering character. Throughout the entire district the news of the sad, though by many not unexpected, event was received with feelings of the sincerest sorrow and regret, for few men were better known than Mr. Goodall, while none were held in higher respect than he may justly said to have been. In Melton itself, the almost untimely end of so estimable a townsman has caused quite a gloom. During his residence here, he gained the good opinion of every class of the inhabitants with whom he came into contact, both in his professional and private capacities. The circumstances leading up to the malady which ultimately brought about the death of Mr. Goodall were such as to make the occurrence all the more lamentable in its character, the deceased gentlemen having met with two severe accidents within a very short time of each other, while handling horses in the course of his business. The result was a permanent injury to the spine, bringing on complications which the best of medical skill failed to subdue. Though not entirely incapacitated, Mr. Goodall never thoroughly recovered from the mishaps referred to, and about ten weeks ago his condition became such as to give rise to grave fears. His medical attendants, Drs. Powell and McCrath, were unremitting in their attentions to the unfortunate gentleman, while the services of Sir Wm. Broadbent, the eminent London physician, and other well-known practitioners, have also been requisitioned. Despite their skill, Mr. Goodall gradually became worse, and, for some little time before death ensued, his case was regarded as hopeless, a feeling which the patient himself shared. The end was quite peaceful, Mr. Goodall being completely exhausted owing to the nature of his complaint. We need scarcely observe that the utmost sympathy is felt for Mrs. Goodall in her bereavement, and, also, we are sure we may add, for the deceased gentleman's mother, who is still living, the blow to both being a very sad one. He was fifty-four years of age.

Mr. Goodall was the eldest son of the famous Mr. Will Goodall, for many years huntsman of the Belvoir Hounds, and was born at the Kennels at Belvoir Castle in December, 1841. The love of horse and hound appears to have been a distinguishing trait of the family, for the deceased, and his brothers, Mr. Stephen and Mr. Thomas Goodall, all took up the veterinary profession, while Mr. William Goodall is huntsman to the Pytchley Hounds, and Mr. Frank Goodall holds a similar post to the Kildare (Ireland) Hunt.

After receiving a careful education, Mr. Goodall, on deciding to pursue the calling of a veterinary surgeon, was sent to the Royal Veterinary College, London, and in 1862 obtained his diploma. He first practised at Wetherby, in Yorkshire, and after a brief sojourn at Waltham, came to reside at Melton, occupying first the house in which his father-in-law, Mr. Musson, now lives, in Thorpe End. A few years afterwards, he took up his residence in Burton Street, the house being one which possesses some historical interest. His talents were speedily recognised, and he came to be regarded as an authority on many matters appertaining to his profession. He was particularly noted for his judgment as to soundness of wind, and his services were often requisitioned as a judge at shows, while he acted as veterinary inspector at several of the Islington exhibitions. Our readers will readily surmise that Mr. Goodall was extremely fond of hunting, and he was always delighted to hear of good runs with the Belvoir, although he invariably allowed himself only one day a week with hounds. In connection with the Melton Horse Show, the Lincolnshire Veterinary Association, of which he was the president, and in other capacities where his professional knowledge and wide experience stood him in good stead, Mr. Goodall rendered much valuable and useful service. His conscientious work and undoubted skill brought him an extensive practice, and his kind and genial disposition won for him the sincere respect of all classes.

The interment took place in the Melton Cemetery, the first part of the service being held in the Parish Church.

CONTAGIOUS DISEASES ANIMALS ACT, 1894.

England, Scotland, and Wales.

Abstract from the Summary of Returns for the week ending April 20th, 1895.

Pleuro-Pneumonia.	Swine Fever.	Anthrax.	Glanders (including Farcy).	Rabies.	Foot-and-Mouth Disease.
None	*Slaughtered* Diseased 817 Died ... 244 Suspected 44 1105	Fresh Outbreaks 9 Animals Attacked 15	Fresh Outbreaks 15 Animals Attacked 27	Dogs Killed 14 ,, Died 1 15	None

For the week ending April 27th, 1895.

Pleuro-Pneumonia.	Swine Fever.	Anthrax.	Glanders (including Farcy).	Rabies.	Foot-and-Mouth Disease.
None	*Slaughtered* Died ... 218 Diseased 1064 Suspected 33 1315	Fresh Outbreaks 9 Animals Attacked 14	Fresh Outbreaks 14 Animals Attacked 17	Dogs Killed 11 ,, Died 3 Sheep Killed 1 15	None

For the week ending May 4th, 1895.

Pleuro-Pneumonia.	Swine Fever.	Anthrax.	Glanders (including Farcy).	Rabies.	Foot and-Mouth Disease.
None	*Slaughtered* Diseased 1009 Died ... 186 Suspected 21 1216	Fresh Outbreaks 11 Animals Attacked 19	Fresh Outbreaks 18 Animals Attacked 27	Dogs Killed 15 ,, Died 2 Sheep Killed 6 ,, Died 2 25	None

IRELAND.

Abstract from the Summary of Returns for the week ending April 20th, 1895.

Pleuro-Pneumonia.	Swine Fever.	Anthrax.	Glanders (including Farcy).	Rabies.	Foot-and Mouth Disease.
None	*Slaughtered* Diseased, etc. ... 102 Died ... 23 Suspected 14 139	None	None.	Dogs Killed 10 Cattle Died 2 Swine ,, 1 Ass ,, 1 14	None

For the week ending April 27th, 1895.

Pleuro-Pneumonia.	Swine Fever.	Anthrax.	Glanders (including Farcy).	Rabies.	Foot-and Mouth Disease.
None	*Slaughtered* Diseased, etc. ... 97 Died ... 21 Suspected 18 136	Fresh Outbreak ... 1 Animals Attacked 1	None	Dogs Killed 16 Cattle ,, 1 17	None

For the week ending May 4th, 1895.

Pleuro-Pneumonia.	Swine Fever.	Anthrax.	Glanders (including Farcy).	Rabies.	Foot-and-Mouth Disease.
None	*Slaughtered* Diseased 157 Died ... 51 Suspected 20 228	None	None	Dogs Killed 19 Cattle ,, 1 Sheep ,, 1 Cattle Died 1 Sheep ,, 1 Swine ,, 1 24	None

Veterinary Department, Privy Council Office, Dublin Castle.

NEW INSTRUMENT CASE.

A NEW style of instrument case, made for Mr. Graham Gillam, of the Royal Veterinary College, by Messrs. Arnold and Sons, will be specially serviceable for country practitioners. By means of a strap running through metal loops,

the leather loops, which hold the instruments, can be enlarged or made smaller to accommodate any sized pocket instrument. By withdrawal of the

straps from the metal loops, all corners in which dirt would accumulate can be thoroughly cleaned. It is made of leather, and is stronger and more durable than the ordinary pocket case.—(*Communicated.*)

AN INSTRUMENT FOR HOOF SECTION.

A NEW instrument has been brought out by Messrs. Arnold and Sons, for the purpose of facilitating the cutting through of the wall of the foot in Smith's operations. It is called a hoof plane, and cuts a wide groove from the coronet to ground surface, and as deep as the white line. To those who practise hoof section, this instrument will be found of value as a time and labour-saving appliance.—(*Communicated.*)

Correspondence.

VETERINARY INFIRMARY, MIDDLESBORO',
May 4th, 1895.

To the Editor of the VETERINARY JOURNAL.

DEAR SIR,—The morbid specimen forwarded to you yesterday was discovered, *post-mortem*, in the colon of a 4 years old cob, 14-2 h. h. The history of the subject so far as I can gather, is as follows:—It was bought at Brough Hill Fair about a year ago, and up to four months ago gave every satisfaction to the owner. About this time it gradually commenced to lose condition, fed and worked indifferently, and had a peculiar tucked-up appearance. Two months ago it completely lost its appetite, was brought to my place, and after careful examination the case was diagnosed as one of indigestion, due to imperfect

mastication; the teeth were very irregular; after rasping, etc., and giving tonics, etc., it gradually improved; after a fortnight's treatment was apparently cured. On the morning of the 28th ult., the owner found the animal suffering from abdominal pain. He brought it to my yard about 9 p.m.; upon exploring *per rectum* the abdominal growth was very readily felt and pressure caused acute pain, the pony nearly falling when pressure was brought to bear upon it. Abscess being diagnosed I advised the owner to have it destroyed; he refused, as is usually the case. (I may mention that there was no mistaking it for a calculus.)

Symptoms, so far as I am able to describe, were as follows:—Pulse 84. Visible mucous membrane highly injected, with an unusually tucked-up appearance of the abdomen; two or three small pellets of dung had been passed during the day; would stand with the off foreleg flexed at the knee, the foot held close up to the elbow, and continually moving it backwards and forwards in a jerking manner; this would go on for a few minutes, when the same process was gone through with the near foreleg, but not for so long a time; would then lie down on near side, look round to the off flank, get up on his forefeet and sit on his haunches for a few minutes; this went on until 1 p.m. on the 29th ult. Pulseless, respiration hurried, and sighing occasionally, haggard expression, walking round and round the box, stand for a few minutes, and balance himself, as it were; the animal continuing these symptoms until 3 p.m., when he staggered, fell, and expired in a few minutes.

Upon making *post-mortem* all the organs appeared healthy except the liver, which on section had a peculiar mottled appearance. I trust you will excuse my poor attempt at describing what I think a rather unusual case, and if you consider it worth describing in your ably-conducted journal, I shall feel doubly repaid for any trouble I have taken in the matter. My real object in sending it on to you is that I am of opinion the growth is "tuberculous" in character. On this I should like your opinion. Apologising for unnecessarily taking up your valuable time.—Yours faithfully, ROBT. ELLIOTT, V.S.

20, ELIZABETH STREET, SYDNEY, N.S.W.,
March 27th, 1895.

To the Editor of the VETERINARY JOURNAL.

DEAR PROFESSOR,—Under cover I have pleasure in handing you particulars of the formation of the first Veterinary Medical Association in this country; possibly you can utilise same for the VETERINARY JOURNAL. Hitherto we have been a disunited profession here, several of our members, though neighbours, being total strangers; happily, thanks to the Association, this is now at an end. Although several attempts had been made in this direction, nothing was done till an event happened which brought us together. A Government department proposed to introduce a free clinique for the benefit of a few amateur students. I called a meeting, and we sent in a joint protest, which resulted in the project being abandoned. The enclosed will explain what followed. So far success has been with us, and the future promises to be prosperous.

I will send you particulars of anything interesting that occurs from time to time.

Unfortunately, the colony is now, and has been for the last two years, suffering from a great depression in business, so that practice here is not very remunerative; horses are practically valueless and quacks are in abundance, so we have not a very lively time; however, I am living in the hope of being able to revisit Leith Walk and find you in the best of health, and everything in the old place in full swing. Wishing to be kindly remembered, with kind regards, Yours faithfully, A. P. GRIBBEN.

ROYAL COLLEGE OF VETERINARY SURGEONS,
10, RED LION SQUARE, HOLBORN, W.C.
May 6th, 1895.

DEAR SIR,—As you are aware the Council of the R.C.V.S. are endeavouring to obtain some alteration of the attitude of the Board of Agriculture towards the veterinary profession.

We are not likely to succeed unless some parliamentary assistance can be obtained, and I therefore enclose you a copy of our report which you might kindly send to the member of Parliament for your district, with a short note, asking him to give his consideration and support.—Yours truly, W. HUNTING.

P.S.—We should be glad to know the name of any favourable M.P.

To the Editor of the VETERINARY JOURNAL.

DEAR SIR,—I have thought the present a fitting opportunity to bring under the notice of the veterinary, as well as the agricultural, profession the great benefits derived from the use of paraffin in the cure of tuberculosis. I have for upwards of twenty years used paraffin as a cure for that disease, holding, as I do, that the paraffin has the power to arrest the development of the bacteria, and thereby restore the animal to a thriving condition. The dose I give to a full-grown ox or cow is two ounces daily, for ten days at least, in a quart bottle of milk or gruel, but this dose might be increased or diminished according to circumstances.—Yours, etc., WILLIAM ANDERSON, M.R.C.V.S.

Titubantie, Coull, Aberdeenshire.

Army Veterinary Department.

London Gazette, April 30*th*.

Veterinary-Captain A. Bostock to be Veterinary-Major. Dated April 30th, 1895.

The following veterinary officers are serving with the Chitral Expedition :—Veterinary-Lieutenant-Colonel R. Poyser, Inspecting Veterinary Officer ; Veterinary-Captain F. Raymond and Veterinary-Lieutenants A. A. Newsom, H. B. Knight, C. B. Freeman, H. T. Sawyer, and G. M. Williams.

Veterinary-Captain E. Taylor and Veterinary-Lieutenant C. Rose are on Field Service in Waziristan.

Veterinary-Lientenant G. K. Walker has taken veterinary charge of the Camp, Okehampton, during the Royal Artillery gun practice. The following transfers have taken place :—Veterinary-Captain A. J. Haslam to Dublin from Newbridge ; Veterinary-Lieutenant J. H. Jackson, Ballincollig to Newbridge, for duty with 3rd Hussars ; Veterinary-Lieutenant F. B. Drage, to Ballincollig, for duty with 10th Hussars.

Extract from London Gazette.

The undermentioned Veterinary-Lieutenants to be Veterinary-Captains. Dated 13th May, 1895 :—David J. Burry, James G. O'Donel, Alex. E. Richardson and William K. Walker.

Communications, Books, Journals, etc., Received.

E. W. Hoare ; "Hirudo" ; Hy. Gray ; H. J. Goodall ; Arnold & Sons ; Animals' Department, Army Veterinary Department ; A. W. Hill ; Central Veterinary Medical Society ; North of England Veterinary Medical Society ; Midland Veterinary Medical Society ; Yorkshire Veterinary Medical Society ; New South Wales Veterinary Medical Society ; National Veterinary Association ; Lancashire Veterinary Medical Society ; W. Anderson ; "The Scotsman" ; "The Veterinarian" ; "The Veterinary Record" ; "Notes on Injurious Insects," by Miss E. A. Ormerod ; "Agricultural Journal," Cape Colony ; "Medical Press" ; "Farming World" ; Recueil de Médécine Vétérinaire" ; "Journal of Comparative Medicine and Veterinary Archives" ; "Modern Medicine and Bacteriological Review."